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JUL 8 - 1915

BRICK and CLAY RECORD

JOHN T. UNDERWOOD

AGAIN—HISTORY REPEATS ITSELF

EVERY great movement in the history of the world—every invention—every new application of an old principle—each one has had to stand the ridicule and scoffings of those who couldn't or wouldn't see—and yet the world has progressed—our daily life has shown wonderful development upward—our natural resources we have learned to conserve—because there has always been one man brave enough, and with such undaunted faith, as to go on to that success that he knew must come.

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could be applied successfully to the burning of clay products in periodic kilns. We backed our faith with our money—we were patient—but we were also busy—and today we can look out into Ohio, Indiana, Michigan—wherever the Underwood System has been tried—and we see that it has already proven its practicability—its superiority over every other method of burning. Without a single exception, in every plant where it has been installed, it is a positive success.

Paving Brick, Building Brick, Face Brick, Tile and Tile Roofing—all are now being successfully burned by the Underwood System in plants that are among the best known in the industry for the superiority of their respective products.

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DAYTON, OHIO, U. S. A.

Vol. XLVII, No. 1 Chicago July 6, 1915

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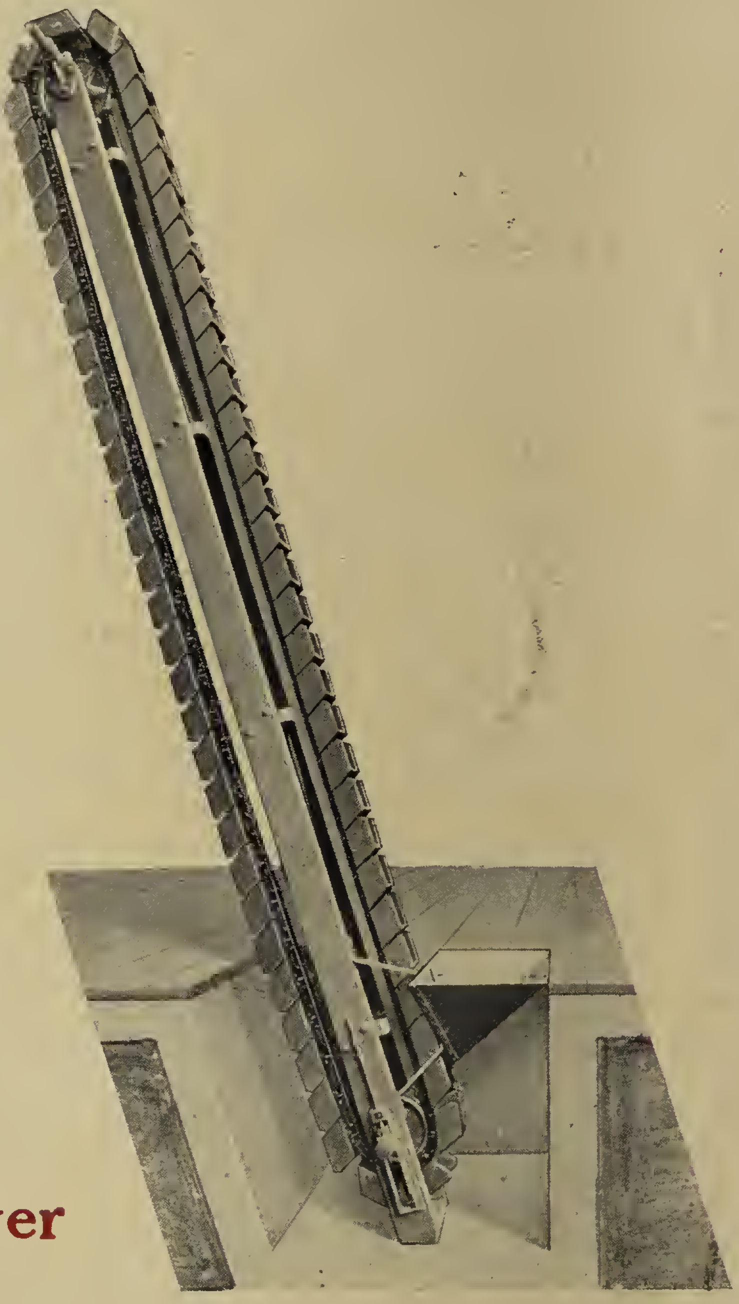

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How to Estimate a Firm's Worth

One of the best ways to determine the dependability of any concern is to watch its advertising—see whether it advertises regularly, and for any great length of time.

Anybody can make bold statements, which are perhaps permissible as mere exaggerations, but whoever does this, you will notice, is not a regular advertiser, and he finally quits because he cannot make good on his claims.

On the other hand, if you will read and absorb the advertising of concerns using a publication regularly—"Brick and Clay Record," for instance—you will see an underlying continuity of thought. You will see that such advertisers give you a guarantee that is dependable—one that really protects you.

No firm could do this unless it was inherently and practically honest. So it's a safe rule to follow: Watch the advertising pages in order to get a correct estimate of a firm's worth.

We will not let anybody use our advertising columns unless we are satisfied as to their reliability.

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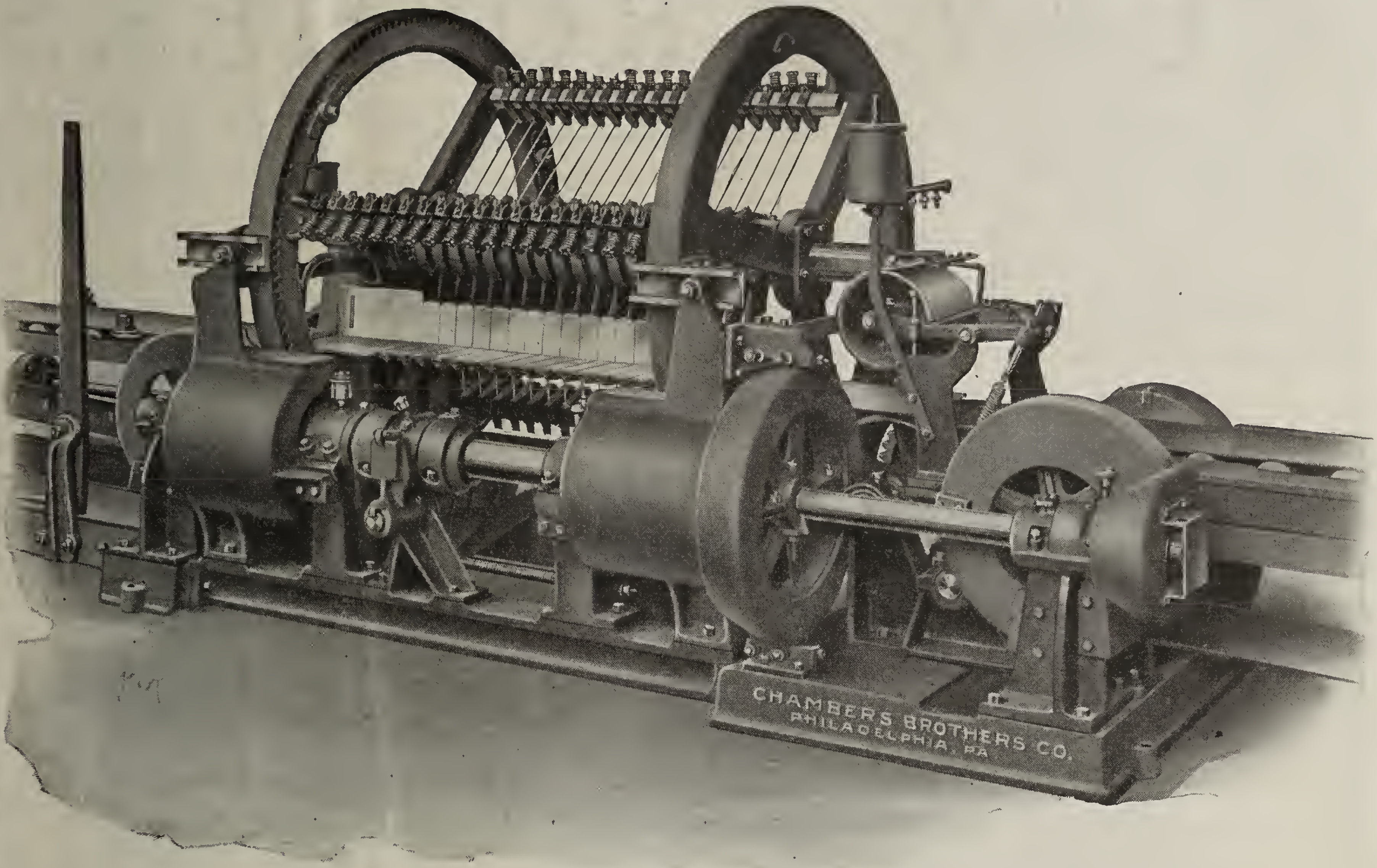
New Multiple Brick Cutter

That Does Not Swell the Clay Bar



Automatic Side Cutter No. 10, Built by

Chambers Brothers Co., Philadelphia, Pa.

A frictional driven Cutter for Brick or Block that starts promptly and stops at completion of its stroke without noise or shock.

Entirely free from knocker clutches or similar throw out devices.

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All revolving parts of the cutting mechanism, together with the platen, are suspended from a stationary steel shaft, the reel hub being upon roller bearings. There is no running machinery beneath the platen, no track or wheels for the support of a carriage, and no parts into which chips can be thrown by the cutting wires. Pressure by one finger will move the cutter endways in either direction.

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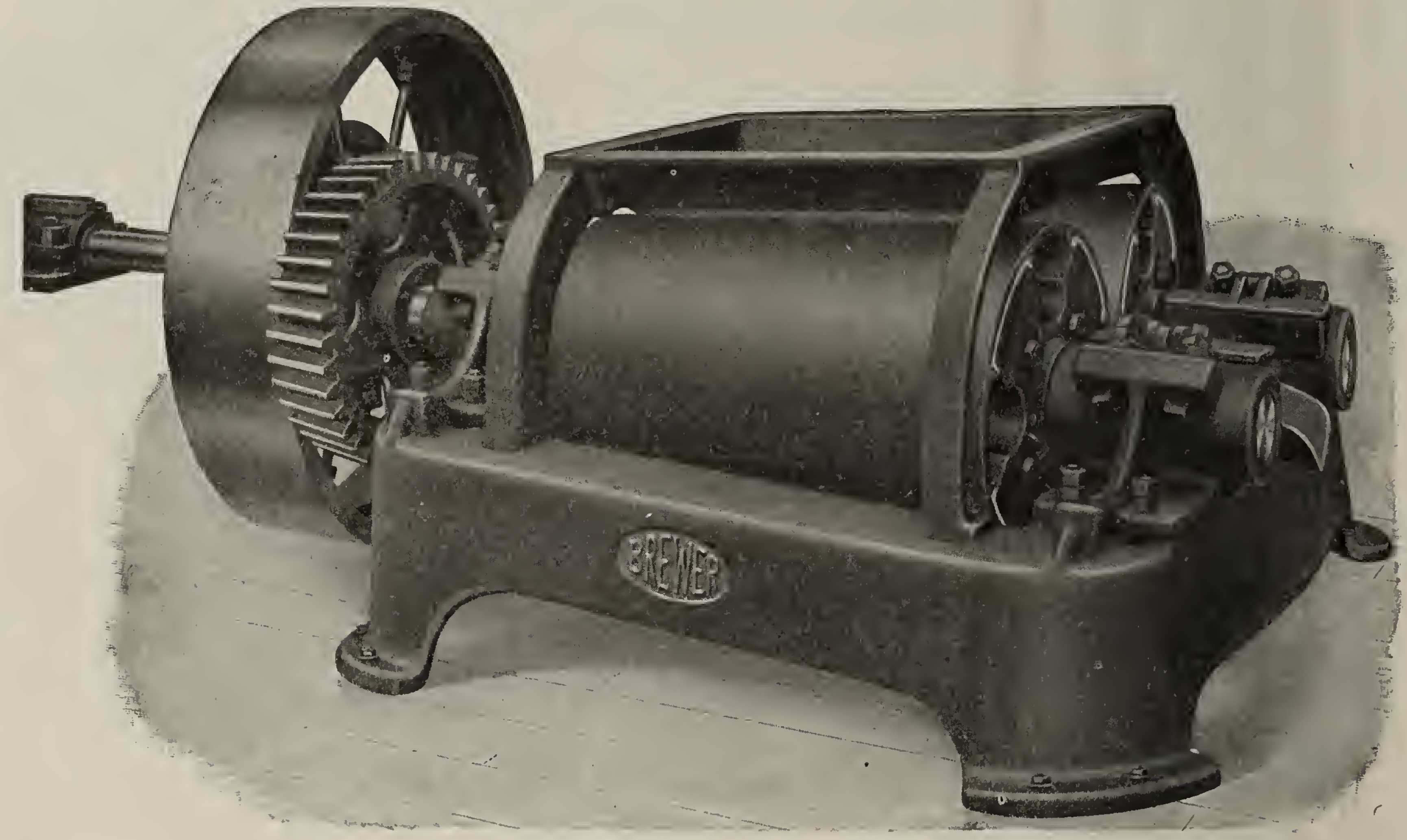

But Crushers are only a small part of our line—we also build

BRICK MACHINES, DRAIN TILE MACHINES, AUTOMATIC CUTTERS, PUG MILLS, GRANULATORS, HOISTS, CONVEYORS, ETC.

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WHY
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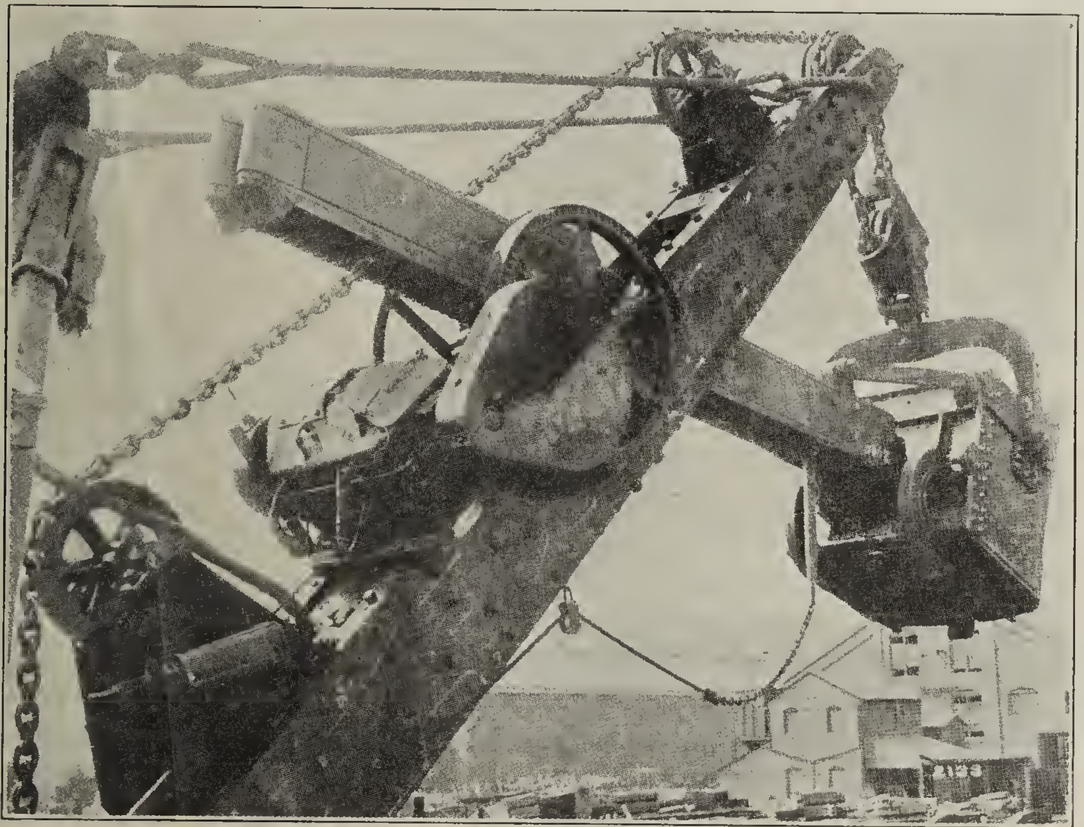
When Electric Power Transports Itself?



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Increase profits by equipping your shovel with G-E motors. Labor charges can be reduced 30%; repair bills cut in half and boiler and feed water troubles avoided.

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Operate a B & B Tramway

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Snow, rain and sleet cannot affect our Tramways—they keep right on working.

Ask our Tramway Engineers to fully explain our Tramway System, as applicable to your plant. It's worth your while to write them—of course, you obligate yourself to nothing.

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Our Seattle Factory enables us to handle Pacific Coast orders with quickest dispatch.

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66,000 Brick at a Cost of Only $6.37

Including Engineer, Helper, Coal and Water

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Clay handled in 8 hrs. 10 min.	160 cu. yds.
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Capacity of cars	2 cu. yds.
Average loading time per car	3 min.
Daily output	66,000 brick
Total cost for engineer, helper, coal and water	$6.37

Complete information regarding this and numerous other tests under conditions similar to your own will be sent upon request.

Ask to be shown the facts and request copy of "Booklet A."

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THE THEW AUTOMATIC SHOVEL CO. LORAIN, OHIO

BRICK *and* CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

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Published on the First and Third Tuesdays in Each Month by the

Kenfield-Leach Company

445 Plymouth Court,
Chicago

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Cable Address Kenleaco, Chicago

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Telephone Harrison 951

Chicago, July 6, 1915

Vol. XLVII No. 1

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

STANDING BETWEEN the clay products manufacturer and the long promised day of prosperity, is a very considerable obstacle. It is his inadequate sales policy.

The manufacturer of any clay product may help his bank balance and increase his dividend by applying efficiency methods to various processes of manufacture, or he may improve his financial status by inventing or adopting some new color, form or texture to his material which, for the time being, will be exclusive.

But what he saves at the spigot of manufacture he wastes at the bunghole of costly, inefficient and wasteful sales methods.

No set policy has been established for the sales-distribution of any one clay product. Manufacturers of common-brick have as many different ways of selling that commodity as there are manufacturing districts in the country.

The reason for this is said to be the different customs of these different localities. Who makes the customs? Is it the man who buys or the man who sells?

If an investigation were to be started in any one of these manufacturing districts by the men who were competing with each other and against various competitive materials, it would be found that one manufacturer or dealer had a method of sales-distribution which was superior to any of the methods that were followed by the others.

In any ordinary line of busines, that superior method of sales-distribution would be adopted by all of the others, but—

Manufacturers of clay products do not act along the same lines as those followed in other industries. Rather would they decide that it would be dangerous to make any change in their individual way of doing business.

Perhaps some particularly brilliant member of the conference would object to the adoption of a better method of sales-distribution because, by so doing, he and the others might be guilty of a "combination in restraint of trade" and so be amenable to the Sherman anti-trust act.

Thus, after carefully tying their own hands so as to prevent themselves from doing anything in the way of mutual betterment, the conference would be apt to become a memory, as many similar conferences have become in the past few years.

It is a matter of fact and not of report only, that the average brick salesman, whether he sell common-brick or face-brick, acts as a broker between the house that employs him and his customer; he ascertains how much the customer is willing to pay and then how little his firm is willing to take. With this knowledge he endeavors to secure a compromise from each side.

He forgets, as a rule, that the customer does not pay his salary. He is a very vital factor in the competition that brings his employer to the verge of bankruptcy.

Few manufacturers of clay products base their selling price upon "cost plus reasonable profit." As a rule, they set the figure at the old familiar "whatever the traffic will bear."

But the salesman returns, like the dove from Mount Ararat, with the green message of cut prices in his bill and spreads consternation in the sales-office of the man who employs him.

Who Sets Your Sales Figure?

The manufacturer who sets his own price and sticks to it in days of storm and stress, has a way of selling his material at a good price, rather than at a figure which is put upon it by a host of buyers.

The man who adopts the methods of the Mohammedan countries, where the merchant loves the bargain rather than the sale and hates the customer who pays the first asked price, is destined to occupy the humiliating position of a man that tries to sit upon two stools at once. Between the figure that he asks and the figure

The Editor's Corner

that he cannot afford to take, there is, of course, a wide expanse.

But the buyer, with a set notion of how little he intends to pay, covers that expanse in a single step and begins his bargaining well within the realm of lost profits to the seller.

It is a fact and not mere report, that the majority of buyers in many of America's largest cities have a better knowledge of the price at which face-brick can be bought than have any of the men who are selling that commodity. Consequently, the buyer comes into the office knowing exactly how little he will pay and the seller has no set figure upon which to rest, save the price which is exactly cost and—

Selling at cost price invariably nets a loss.

Teach Your Salesmen

The manufacturer of burned clay products does little or nothing in the way of educating his salesmen. Few of them know what to say when meeting with competitive material. So they talk price.

Selling clay products by elimination is so general as to be accepted as standard.

What does "selling by elimination" mean? Simply the taking up of each competitive material and showing its faults. After that, it is supposed that the buyer will be so impressed with the merits of clay products as to immediately buy them.

That sort of salesmanship applied to any industry explains its lack of progress.

Every burned clay product has a certain intrinsic merit. This merit is something which its manufacturer should know and be able to explain without trying to belittle some competitive material. It is better to say: "My material is good" than "My material is better than so and so."

Unless you have a sales argument which is convincing or which can be made convincing without the aid of a hammer and anvil, it would be well to hire someone to familiarize himself with your material and tell you how good it is.

In other words, it would be well to hire someone to teach you your sales argument.

Then you would be able to teach it to your salesmen and after that, to the dealers who sell your material in outlying districts.

Educate Your Dealer

These dealers need as much educating as do your salesmen. It is currently reported that the average lumberyard which, up to a few years ago dealt exclusively in wood, now carries a line of cement, of plaster, of hollow tile and of brick.

This lumber dealer and his salesmen sell the material which is most familiar to them. You say—"That is lumber, of course"—but that statement alone proves how little thought you have given to the matter.

The owner of a lumberyard who has taken on these "side lines" has been forced to do so by the demand for these materials. He has found that there is a profit in them and he is willing to keep on selling them.

Naturally he knows more about wood than he does about brick or drain tile or fireproofing. One thing that he knows about wood is that his profits on that commodity have been steadily decreasing for the past ten years.

The manufacturers of clay products can increase the dealer's profits on burned clay if they will increase the dealer's knowledge of the materials in question and will provide him with the proper arguments that he must, in turn, give to his customers.

Leave It Alone!

There is a rumor that one of the large cement companies—one that was particularly active in promoting the use of cement surfaced highways—has decided to withdraw its promotion bureau and take the business that comes to it through brick paving.

Cement surfaced highways will be built—this year, next year and in the years to come and, unless the method of construction is a great improvement upon that of the past decade, these highways will crack and wear and be repaired until such time as more and more municipalities are made to understand that economy in pavement means paving with brick.

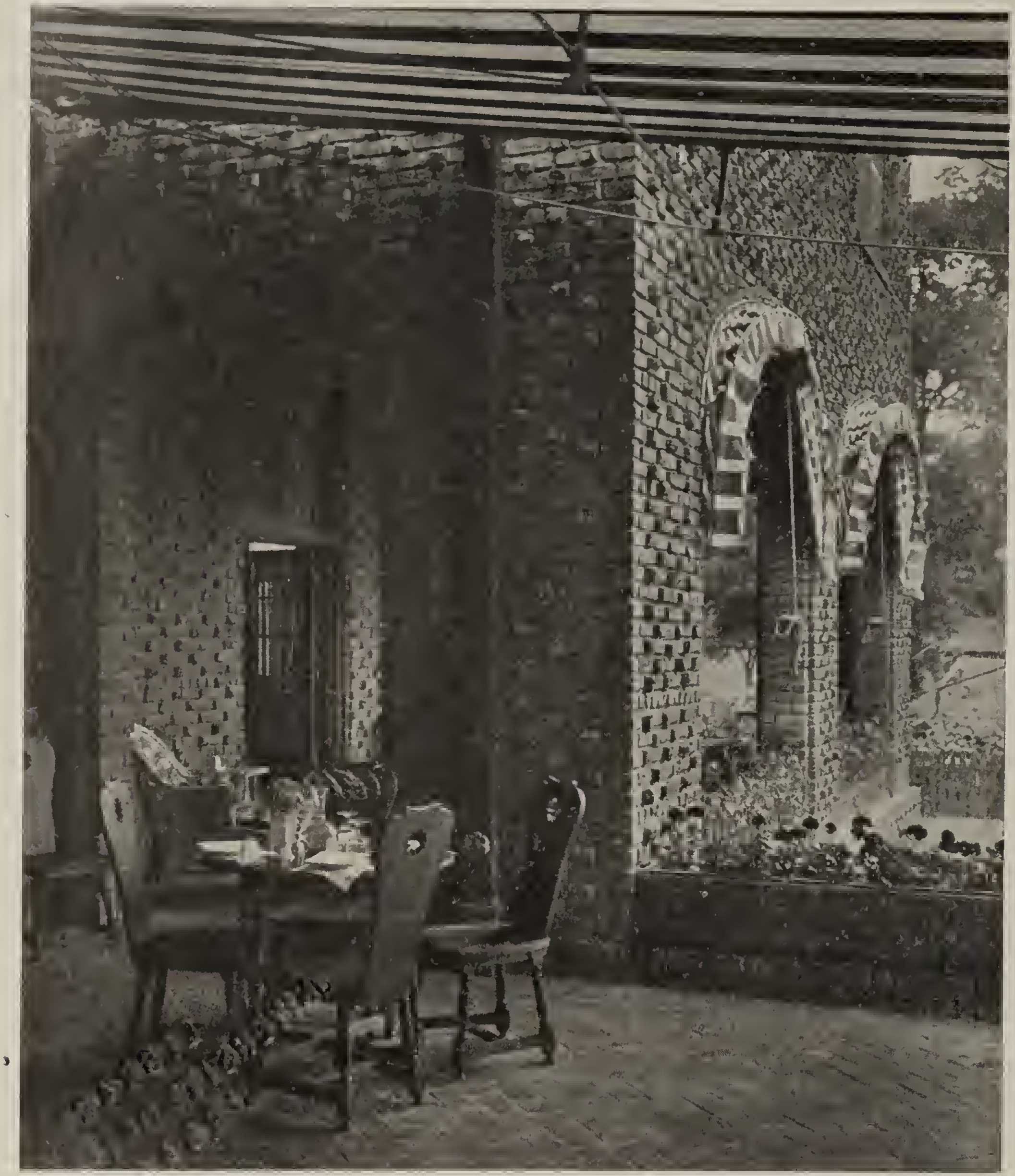
But there is one consolation—these cement highways, cracked and worn though they be—will form excellent foundations for the brick that will be placed upon them when the Day of Wisdom arrives.

On Building With Brick

An Expression of Architectural Thought and Structural Honesty

By C. Matlack Price

ACKNOWLEDGEMENT is due and is cheerfully given "Arts and Decorations" for the subject matter and illustrations that accompany this article. It presents a new line of thought to the man who makes brick, and should give him a better viewpoint from which to see the possibilities of a greater and better use of the material he is manufacturing.



Walker & Gillette, Architects

A Clever and Effective Manner of Giving a Rough and Interesting Texture to Brickwork

A FRENCH WIT voiced the idea that words exist for the purpose of concealing thoughts. It is a good deal more true that, until a few years ago, our architects regarded buildings materials as existing for the purpose of concealing construction.

It is a fundamental of architecture that the structure of a building is its most important consideration—that the structure involves architectural *thought*, whereas the decoration, or detailed embellishment involves, rather, architectural opinion, or taste, or knowledge—for the lack of these qualities.

Obviously, therefore, any device for the concealment of structural facts is (in varying degrees) equivalent to architectural dishonesty. At a time not very far past trickery in such matters was considered not only good form, but rather a credit to the ingenuity of the architect. If cast iron could be painted to resemble bronze, if stucco or brick could be made to resemble stonework, the architect felt very pleased. There are still in existence examples of the once highly esteemed art of "graining"—by which a dextrous painter (taught to excel in this particular kind of artistic knavery), could, with a few skillful "swipes," make your soft pine door as of strangely and wonderfully grained oak or Circassian walnut—a thing of monstrosity and a crime forever. Encouraged by their success along these lines, the painters (often with misguided skill) simulated rare marbles either on plaster or wood, quarrying these out of their paint-pails. But we must not blame them, for the architects allowed them to do these horrid things, and, we are to suppose, even encouraged them.

So in this period alluded to above, when paint and plaster were seriously accepted, and even desired as substitutes for rare woods and marbles, it is hardly surprising that brick was made the victim of no less perverted trickery than other honest or beautiful materials.

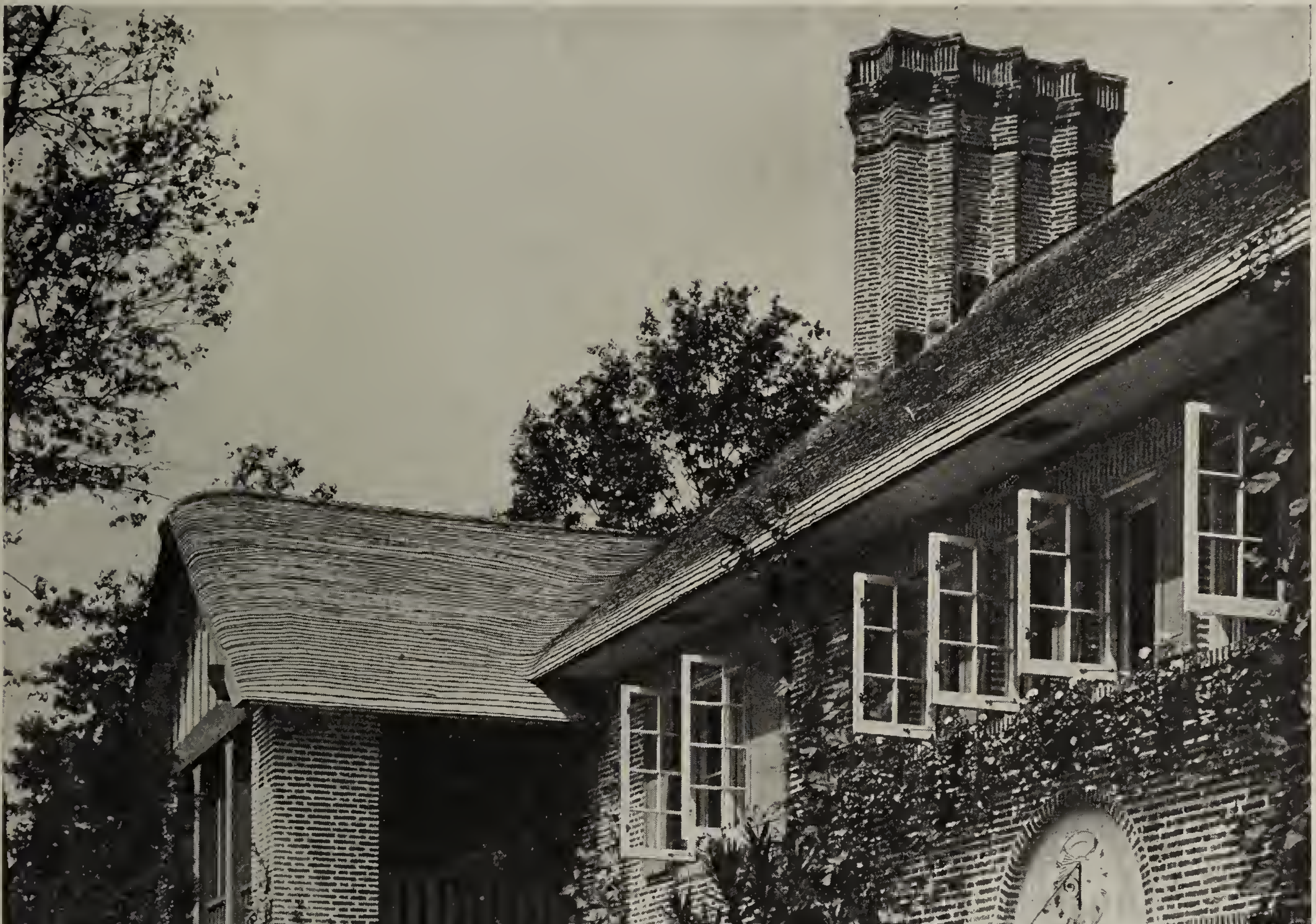
If you had spoken to a builder of 1880, or thereabouts, of the "texture" of brick, he would have looked at you with utter blankness, and gone on with his deadly work. In those days, the most desirable thing in brickbuilding was to attain an absolute uniformity, a complete monotony of color and bonding. Texture was unheard of and less thought of. The beautifully discolored brick which now form the accents and interest of our buildings were discarded and built into foundations where they would not be seen. The endeavor was to effect a perfectly smooth wall, in which every brick should be like every other brick, and all laid in like manner. Not content with an honest brick wall, the builders of those days had resource to a device as thoroughly depraved as it was characteristic of the times. They *painted* their brickwork. The more conservative used a rich red, unlike any real brick, and this they further embellished by picking out imaginary joints (regardless of the real joints) in black or white paint. But the more ambitious went further. We have seen some of their masterpieces. They painted their brickwork a dismal, sallow sort of yellow, with dark red joints (imaginary) or, in wider flights of fancy, used a weird and horrible green, unlike any color in the world, and according to taste, painted imaginary joints upon this, in black or white.

Today the art of brickbuilding is a very different thing. Brick is used as brick, and it is a material in which any architect should be proud to design and any builder with a spark of craftsman in him, proud to build.

The turning point came first with an appreciation of the beauties of very old brickwork, and the present development came with the present remarkable evolution in the art of brickmaking.

A few discerning architects, studying some early buildings in this country, noticed that there was a considerable range of color in early brickwork, and an often recurring note of interest and variety in the appearance of odd burnt or discolored brick here and there. Brick were made slowly and in limited quantities in those days, and the mason could not afford to throw out any.

Consequently there began to be a demand for those brick which, being on the inside of the stack, were blackened by the fire—the same brick which had for some time been thrown out. Architects began to work out patterns in brickwork, or to introduce burnt brick at random in their work, and in the course of time it was noticed that a single brick might be more interesting than the whole wall. In other words, the brick became recognized as a *unit* in design, as it is actually a unit in construction, and with this recognition came the "'raked joint." This kind of joint, formed by raking out a little mortar, allowed each brick to stand out a little, and immediately there was an



Albro & Lindeberg, Architects

A Peculiarly Successful Achievement in Brickbuilding an American Country House effect of texture in the whole wall; this came before the development of texture in the brick itself.

A brick wall came to be desired because of its character and expression. It was an honest piece of craftsmanship, beautiful as well, and naturally endowed with qualities of permanence, fire-resistance and stability.

It was a natural thing that the individual brick became a thing to be further developed, and several manufacturers began to produce beautifully colored brick, wherein all the colors were achieved in the burning, and were all in tone with the softer and more harmonious colors of nature.

There are now "scales" of color in brick, with which it is possible to effect the most subtle and pleasing schemes in dull purples, blues, grays, browns, yellows and greens. A brick which is green because it is painted is a grief to any decent person, but a brick which is green, because it is burned to a green color is another thing entirely.

But the difference is more than one of dishonesty and honesty, or surface deception and real material—the brick of today has, in itself, in each individual brick, a texture, as distinctive as the texture of a woven fabric or the textures of different stones.

The Development of the Possibilities of Brick as a Unit of Design Marked the First Change from Old Methods

The "smooth" brick, so much desired in the days of monotonous brickwork, is now very much in the discard. It was very difficult to effect interesting designs with smooth brick, but since flat uniformity was then the desideratum they were always regarded as especially "choice."

In those days, the phrase "same as sample" was a popular and necessary part of every order for face-brick. Any deviation from the size, shape, finish, and color of the one brick that had served as a basis for the sale was a reason for rejection and a well inspected "sorting."

Today, brick are sold to conform to a given color range, and a very considerable difference is allowed in contour. The heads, or ends of the brick are not expected to absolutely match the faces, and in many cases, a single brick will carry all of the shades that are found in the carload.

These varicolored brick are made, as a rule, by setting the brick face to face in the kiln. The shrinkage of the brick under the exposure to high fire allows the flame to act upon the outer edges of these faces, the flame entering for some distance toward the center of the face. In the case of red-burning clay, this gives the effect of dark edges to the face, the centers being of a dull red, and shading darker until the full depth of color is reached in the extreme edges.

The rough finish that has taken so much of a hold on the architectural world is logical, in that it serves to absorb light. It does not reflect the sunlight, as did the smooth surface of a decade since, and the white patches, made by reflected sunlight, no longer disfigure the brickwork that is doing so much to make American domestic architecture so well worthy of praise.

An Extensive Use of Brick in Garden and House, Where Walls, Terraces and Steps Are All Carried Out with an Honest Expression of Material

Let Us Tell You What Happened—

The Board of Directors of the American Face Brick Association recently decided to hold a *members' midsummer conference* at the Hotel Statler, in Detroit, Mich., Thursday and Friday, July 15 and 16.

To this conference manufacturers of face-brick are cordially invited. The invitation is heart-felt and the welcome will be warm. Every man whose capital is invested in the production of facing brick will find interest and profit in attending these meetings.

The work that the American Face Brick Association is doing in its field is not heralded with blare of trumpets nor with beating of drums. But it is effective—it is making progress.

Membership in the American Face Brick Association carries with it the necessity of subscribing a certain amount, based upon the yearly production of the member's plant or plants. In return, it gives him service that he could not receive by an individual investment of ten times the amount of his subscription.

Membership in the American Face Brick Association is something that is obtained only after a careful investigation of the applicant and proof of its willingness to abide by the rules of conduct that are a part of the constitution and by-laws of the Association.

The list of membership includes the largest producers of face-brick in America. The directorate is made up of representatives of the Ironclay Brick Company, of Columbus, Ohio; the Beaver Clay Manufacturing Company, of New Galilee, Pa.; the Belden Brick Company, of Canton, Ohio; the Jewettville Brick Company, of Buffalo, N. Y.; the Western Brick Company, of Danville, Ill.; the Kittanning Brick and Fire Clay Company, of Pittsburgh, Pa.; the Ridgway Brick Company, of Ridgway, Pa.; the Puritan Brick Company, of Detroit, Mich.; the Columbus Brick and Terra Cotta Company, of Columbus, Ohio; the Thomas Moulding Brick Company, of Chicago; the Claycraft Mining and Brick Company, of Columbus, Ohio; the Sibley Brick Company, of Birmingham, Ala.; the Hydraulic-Press Brick Company, of St. Louis, Mo.; the Twin City Brick Company, of St. Paul, Minn., and the Hay Walker Brick Company, of Pittsburgh.

Any manufacturer whose product is primarily face-brick will do himself and his plant a good turn, by going to Detroit, Mich., on the 15th day of the present month and making preparation to stay over the following day.

It may be that something he will see or hear will make him also see the advisability of joining a movement that includes so many of the prominent men in the industry.

Go—with the idea of making this midsummer conference large and enthusiastic. Go—with the idea of learning something that may make your bank balance a little more friendly.

Some indication of the fields that are being opened for American enterprise is being given by word received from Willy Lamot, formerly of Antwerp, but temporarily located at Shardshighs, Halstead, Essex, England, who states that several Belgian business men of high standing have created an organization with the double object of introducing in Belgium, after the war is over, a large number of American products—both finished goods and machinery for making them; and to employ, as agents, representatives, etc., a large number of Belgian manufacturers and business men, who have been partially ruined, but who still possess sufficient capital to give the necessary guarantees of prompt payment for all shipments made to or through them.

On account of the delays and uncertainties of mail matter under present censorship and other war conditions, it is recommended that all letters addressed to Mr. Willy Lamot, at Shardshighs, Halstead, Essex, England, be written in duplicate and mailed at least one week apart. Further information can be obtained by writing him at an early date, and it is suggested that catalogues be mailed with the letters.

The Wisconsin Lime and Cement Company, which maintains a number of distributing yards in Chicago, and which carries a large and comprehensive line of face-brick, is distributing a price-list of the various face-brick sold exclusively in the Chicago market by it, as well as paving-brick and fire-brick.

A list of these brick, with a full description of the color and quality, is given, and of the material and process with which each is made. A great deal of emphasis is laid on the fact that this is a one-price house, and that the published prices will not be deviated from, under any circumstances.

The slogan "One price to all for the same service rendered" is repeated on many of the pages, and conditions governing all sales are fully covered. In addition to the prices of brick, which are quoted on orders of 10,000 or more, a list of teaming charges and the terms of sale are plainly stated. A charge is made for first one and one-half miles at the rate of $1.50 per thousand brick per mile, with 25 cents for each additional one-half mile. The terms under which the brick is sold may well be adopted by dealers in other parts of the country and are therefore printed herewith in their entirety, as follows:

> The prices in this list are on strictly first quality bricks f. o. b. job on orders of 10,000 or over, and hauled direct from cars to job where the teaming does not exceed $1.50 per thousand.
>
> On orders of less than a carload, which is 10,000, there will be an additional charge of $2.00 per thousand to cover the cost of warehousing and storing brick in the local yards, plus whatever the teaming may be in excess of $1.50 per thousand.
>
> Credit will be given for all straight brick in quantities of five hundred or over returned from jobs, less three dollars ($3.00) per thousand for depreciation in value on account of excessive handling, less cartage to job and from job to nearest warehouse. Less than 500 will not be taken back, nor will any credit be given for them.
>
> No enameled, moulded, radius, octagon or special shapes of any kind will be taken back, and no credit will be allowed for any that may be left over at the job.
>
> All agreements made and orders taken are contingent upon strikes, accidents and other delays beyond our control.
>
> Two per cent discount for cash on the 10th of the month succeeding delivery, after which date—net.

In addition to listing prices of brick and the terms of sale, the booklet contains a number of short articles relative to the use of face-brick and explains briefly the difference between brick manufactured from surface clay, shale and fire-clay. An appeal is made to home builders to use the same care in the selection of the covering for the outside of the house as that displayed in selecting interior decorations. A striking argument is found in the following words: "What you use inside of your building is subject only to the criticism of your friends. What you use outside is subject to the criticism of every passer-by just as are the clothes you wear."

Preparations are being made for the installation of equipment in the rooms set apart for the ceramic laboratory at the Toronto (Ont.) Technical School. A kiln will be constructed under the direction of A. F. Greaves-Walker, of the Sun Brick Company. The design is the same as that of the kiln that is built at the new government testing plant at Ottawa, erected under the direction of Joseph Keele. A repressing machine was presented by J. E. Frid, the president of the Canadian National Clay Products Association. H. C. Baird and Son, of Parkhill, Ont., are supplying a No. 2 Kells machine with clay-feeder attached. also an 8 by 20 inch end delivery pug-mill. This mill will be driven direct from the pulley shaft of the machine, so that only one drive belt will be required from the line shaft to the main drive pulley on the machine, which is 54 by 12. This concern has agreed, also, to put in the necessary cutting tables and dies. The total length of the machine will be about sixteen feet and the width about four feet. It can be operated at slow speed with seven or eight h. p. In addition to the above, the Sun Brick Company has donated a Martin upright 6-brick stock machine.

Some Facts About Prof. Montgomery

On other pages of this issue of "Brick and Clay Record" will be the first installment of an article on the manufacture of promenade and quarry tile, written by Earle T. Montgomery, of Alfred University.

That his achievements may be better known to our readers, the following extract from *Fiat Lux*—a publication issued by Alfred University, is printed:

Earle T. Montgomery was born at Gallipolis, Ohio, June 11th, 1884, and was educated in the public schools of Binghamton, N. Y., and of Columbus, Ohio. In 1903 he entered the Ohio State University, and was graduated in 1907 with the degree of "Engineer of Mines in Ceramics."

He has had a wide and varied experience in technical ceramic work. From 1907 to 1910 he was ceramic engineer and superintendent for the Wirt Manufacturing Company, of Burrage, Mass., manufacturers of electric porcelain. For the college year of 1910-1911, he was Instructor in Ceramics, Department of Ceramic Engineering, University of Illinois. From 1911 to 1913 a member of the technical staff of the clay products section of the National Bureau of Standards at the Pittsburg Laboratory, first as laboratory assistant and later as assistant ceramic chemist.

In September, 1913, he accepted his present position as assistant professor of ceramics in the New York State School of Clayworking and Ceramics, and has also assumed the duties of assistant director since his connection with the school, thus relieving Prof. Binns of some of the work of administration.

He is the author of a number of technologic papers published by the Bureau of Standards, as well as many contributions to the Transactions of the American Ceramic Society and to technical and trade journals.

More Work for the Investigator

Now that the Associated Advertising Clubs of the World have made their stand for truth, and arranged for funds with which to conduct a campaign that will, it is hoped, drive the dishonest advertiser to cover, it may be able to devote some time to the publications that carry advertising and which, in themselves, are far from being what they claim to be. The "American Lumberman" in a recent issue, makes the following statement, which bears the imprint of a real desire to bring trade and specialized journalism to a higher level.

"One of the architectural papers, so called, which makes pretense to authority in this line, devotes its last issue to three new buildings in New York City. Aside from one article on contracting—contributed, by the way, by a gentleman whose name is prominent in the journal—some book notices and a dozen or so paragraphs supposed to be on art and architecture but most of which are advertisements, whether paid for or not, all the reading matter of the number is descriptive of these three buildings. Almost every one of these articles includes a boost for some concern connected with the building industry or machinery or materials or sundry devices that go into their construction and equipment. Yet this is called an architectural magazine and has the second class mail privilege. Practically it is nothing but advertising of people or of commodities from beginning to end. If anybody should try to send through the mails at the second class rate a lumber publication made up of such stuff he would get into trouble very promptly. Which reminds us that the lumber journals of this country, almost without exception, rank far and away above the trade journal average."

Low Cost Plans for Farm Buildings

The agricultural experiment station at Ames, Iowa, is prepared to supply a long-felt want, in offering to furnish, at a very low cost, plans for permanent farm buildings.

In the past few years Iowa farmers have taken up, very extensively, the rebuilding of farm homes and farm buildings. To help them, the agricultural engineering section of the college at Ames has made a study of plans of farm buildings, including residences, all kinds of bars, silos, water tanks, hog houses, self feeders for swine, corn cribs, seed houses, poultry houses, smoke houses, ice houses, and septic tanks. It has put them in blueprint form and these prints are available for a few cents each, merely enough to cover the cost of printing and mailing.

A bulletin has been issued by the agricultural experiment station at Ames, giving a list of these plans, and this bulletin will be sent, free of charge, to any one who cares to write for it.

New Jersey Clayworkers' Association

Problems affecting the pottery interests and other industries in which clay is utilized for manufacturing purposes were recently considered at the summer session of the New Jersey Clay Workers' Association, held in the Trenton School of Industrial Arts. Although formed only a year ago, this organization has progressed rapidly and the meeting was attended by upwards of 150 members of the association. During the afternoon session the following addresses were made: "Our Atmosphere and the Drying of Clay Products," G. Harold Noyes, of the United States Weather Bureau; "Pottery Drying," J. I. Lyle, of the Carrier Air Conditioning Company, New York City; "Factors Which Cause the Limitation in Variation of Pottery Bodies," R. C. Purdy, of the Norton Company, Worcester, Mass.; "Glazed Brick and Their Uses," T. H. Phillips, of the Sneed Enamel Brick Company, Trenton; "The Preparation of Slips for the New Brunswick Red Shale," George A. Williams, of the ceramic department of Rutgers College; "The Use of Bone Ash as an Opacifier for Glazes," By O. Otis Bowman, of the J. L. Mott Co., Trenton.

At the evening session an address was given by Samuel M. Sharkey, of the Artistic Porcelain Company, who spoke on "The Clays of Mercer County." Other numbers on the program follow: "Some Types of Hard Porcelain," Albert V. Bleininger, of the United States Bureau of Standards, Clay Products Laboratory; "Body Troubles," Enoch G. Bourne, of the School of Industrial Science, Trenton; "The Potters' Flint," by Cullen W. Parmelee, of the department of ceramics, Rutgers College.

The Manufacture of Promenade and Quarry Tile

Being an Authorative Article with a Subject Upon which Little has been Written — Not Only are the Technical Considerations Discussed, but the Latest and Best Factory Practice is Convincingly Presented

THE WRITER of this valuable contribution to clayworking literature, in order that his knowledge of the manufacture of the material described might be refreshed, and late methods, machines and appliances made familiar, visited the plant of the Kushequa Keramic Company, at Kushequa, Pa., a firm manufacturing as high a grade, if not the highest grade of promenade tile made either in this country or abroad. The fact that this company has, during the past year, secured seventy-five per cent of the promenade and quarry tile business in New York city surely proves the high quality of its product and justifies the ranking given it. Professor Montgomery was most cordially received and entertained at Kushequa by Marion W. Blair, the general superintendent. Mr. Blair, as is well known to his many friends in the clayworking industries, is a mechanical engineer as well as a Cr. E. and a most painstaking man in all that he attempts. He says, regarding his product "Given a suitable raw material, it is proper and careful handling all through the manufacturing process that gives a perfect tile of high quality."

It is obvious that the writer is not at liberty to describe and discuss in detail all of the ingenious devices which Mr. Blair has perfected after much careful thought and experimenting, so the discussion to follow will be, in part, a description of the process used at Kushequa and in part details taken from the published work of others.

By E. T. Montgomery, E. M. (in Cer.)

Associate Professor, New York State School of Clayworking and Ceramics, Alfred, N. Y.

QUARRY TILE, so far as is known, were first produced in Wales, and it was in that country that the name originated, being applied, however, only to square flooring tile of different sizes. The term "promenade tile" has grown up with the industry in America, and is used to designate a rectangular flooring tile, usually measuring 6 in. by 9 in. on its surface, but often made in larger dimensions which have the same factor, as, for instance, 9 in. by 12 in. The common sizes of quarry tile are 3 in. by 3 in., 4½ in. by 4½ in., 6 in. by 6 in., 9 in. by 9 in., and 12 in. by 12 in. These tile vary with their area from ¾ in. to 2 in. in thickness and when made according to the best practice, are corrugated on the under side to present a greater surface to the cement or mastic in which they are laid.

Tile such as those dealt with in this paper are made in America by the stiff-mud process and without repressing. Many of the foreign tile are repressed, but this would be unnecessary, so far as the tile made in this country are concerned, as American-made tile are perfect as they come from the die. The deep corrugations that are customary in this class of tile also would make repressing very difficult. The cove-tile, base-tile, angles, caps, etc., are made by repressing, but the quantity used, when compared to the quantity of flat tile, is relatively small.

Promenade and quarry tile have won a wide popularity within the past few years, by their great durability, beauty of color, inherent artistic possibilities and comparatively low cost. They find a field of usefulness in every interior that is of a semi-public character, as in hotels, railroad stations, theatres, hospitals, restaurants and the like, as well as in private work, where outdoor porches, kitchen and laundry floors are built of this material, with a maximum of assured wear at a moderate cost. The growing tendency to sleep out of doors has given us the sleeping porch and the flat or low

The Kushequa Keramic Company's Plant at Kushequa, Pa.

The Shale Pit, Kushequa Keramic Company, Kushequa, Pa.

pitched roof; these in turn, have brought a demand for an impervious surface, smooth in finish without being slippery, susceptible of quick and thorough cleaning. To all of these requirements promenade and quarry tile lend themselves successfully.

About six to ten years covers the history of this industry in the United States, a plant at New Lexington, Ohio, being the first, in all probability, to make this type of floor tile. They have been made for about six years at Kushequa, Pa., and plants which were started at about the same time are operating at various points throughout the country. So far as the writer knows, all are operating economically, and selling their output at satisfactory prices.

RAW MATERIAL

The manufacture of promenade and quarry tile is one point at which a product of the structural materials branch of the industry comes into contact and into competition with a product of the tiling industry proper—a branch of clayworking which makes use of carefully prepared and compounded bodies. It is therefore essential that the clay to be used should be perfectly suited to the purpose, or a poor product is sure to result.

It will be difficult to always find a clay or shale of ideal physical and mineralogical properties, as nearly every clay has some undesirable qualities, but a suitable clay or shale will be one that possesses all of the essential properties, as many other desirable properties as possible, and *no undesirable qualities that cannot be so corrected as to bring the product within the safe limit of manufacture* and without so adding to the cost as to bring the product outside of the safe limit of manufacturing expense. The closer, of course, the properties of the clay or shale approach the ideal, the lower will be the manufacturing cost and, all things being equal, the greater the profit.

What these ideal properties in the raw material are, may be explained as follows: it should be easily ground and screened to the desired fineness; it should slake easily and quickly with water in tempering, and pug without difficulty to a homogeneous mass of the proper plasticity, and with a very small percentage of water; it should be of neither too coarse nor too fine a grain and should flow easily and safely through the die; it should be of low drying and burning shrinkage and hence be free from a tendency to warp or crack in either the dryer or the kiln. With all of this, and fully as important, is the point of purity, i. e.—the clay should contain no solid or fibrous carbonaceous matter which might scratch and mar the face of the tile, or burn out, and so leave pits in the face; neither should it contain mineral compounds which would cause efflorescence, scumming or pitting, unless of such a character, or of so small an amount as to be easily corrected.

The shale or clay should be of a nature that will oxidize easily in burning, vitrify at a fairly low temperature, have a long vitrifaction range to insure uniformity of vitrifaction and color throughout the kiln, and to burn to a tough, hard, dense, non-absorbent product of a clear, clean, rich and uniform color, with square, straight edges and sides and with the face a smooth, level surface, free from any kind of defect.

PREPARING THE RAW MATERIAL

It is usually desirable and necessary, in order to secure a suitable body, to use a mixture of several strata of clay or shale, and where this is done, these different strata should be most intimately blended, and care taken that they do not later separate. This mixing or blending can usually be done at the shale pit or mine, or at the pans—in this latter case however, only when the material from the different strata is segregated and stored in proper bins. From these bins it can be delivered to the pans in such a way as to insure a proper and constant mixture—a result that is obtained better by a mechanical clay feeder than by rule of thumb.

If a mixture of a soft, easily pulverized clay and a harder shale is being used, the material should be pul-

A Tiled Porch on a Residence in Pittsburgh, Pa. The Tile Are 8 by 8 Quarry Tile, Made by the Kushequa Keramic Company verized fine enough at the pan so as to provide against practically any tailings coming back from the screen. Otherwise, the pan will gradually fill up with the harder and coarser material, the two clays separating at the screen and thereby changing the proportions of the two kinds of clay in the mixture. If the pan is run without feeding, until it cleans itself whenever it clogs up, the effect is the same as if part, at least, of the two clays had been separately ground and separately sent over the screen to the bin, the intimate blending of the two at the pan being lost.

The clay screen may be of any standard type and should pass about ten to eighteen mesh material; some shales may require finer grinding than this to produce the desired body texture.

The tempering may be done in either a wet-pan or pug-mill, depending upon the material and upon the ease with which the desired plasticity can be produced.

The shale bank or pit at Kushequa, Pa., as shown in the illustration, is opened up about half way up the hill, which is all solid shale. Three veins of a rather soft, carboniferous shale is being used, and these are carefully mixed at the pit, and the resulting mixture carried in a horse-drawn car to the tipple, where the shale is dumped into a long, metal-lined chute, which carries it into a bin at the bottom of the hill, and on a level with the plant. From this bin the shale is loaded by gravity into cars and drawn a short distance to a point where it is dumped near the dry-pans. The shale is not weathered.

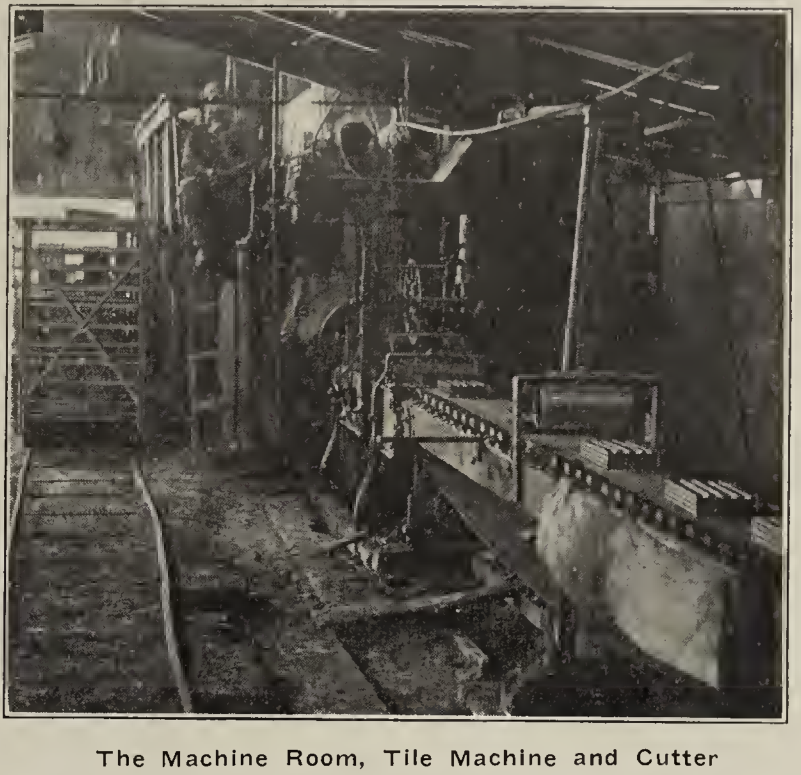
From the pans, it is elevated and passed over perforated metal, inclined gravity screens, the perforations being circular and one-twelfth of an inch in diameter. The screened clay is collected and stored in a bin. This bin is built directly over a 12-ft. pug-mill, in which all of the tempering is done and in which cold water is used.

FORMING

The evolution of the promenade tile die is interesting, and finds a parallel in nearly every other branch of the clayworking industry in which quality was sacrified to quantity in the beginning only to develop the fact, later, that it was better and more economical to produce quality product, rather than capacity output.

A Tiled Floor in the Stock Yards Inn, in Chicago. The Tile Are 6 by 9 Promenade Tile, Made by the Kushequa Keramic Company

Three types of dies have been thoroughly tested out. The first is the four-tile die, which makes four tile at a single cutting. It is practically a hollow-building-block die, and makes a square tube of clay, which is slit at the corners by knives built into the die. In this way, the hollow tile can be broken apart into four single tile, either before or after burning. This type of die has been operated in both a horizontal and a vertical position, and troubles almost too numerous to mention have followed attempts to use it in either way. These have resulted in its final elimination as a possible die for the manufacture of high-grade floor tile.



The Machine Room, Tile Machine and Cutter

The second type tried fared no better. It was the two-tile die, making two tile at a single cutting. It worked better than the four-tile die, but the face of the under tile was always marred, either by the cutting wire or by the belt, or by both—and sometimes by the pallet. The cutting wire flaked off pieces of the face, the belt left the mark of its mesh or the pallet marked the tile that the belt had not marred.

The type of die that has come to stay is the third to be tried. It is a single-tile die, making one tile at a time, and starting it on its journey with some chance of becoming a first-class finished product. There is no valid reason for using any other type, for, while the capacity of the machine is greater when either the two-tile or four-tile die is used, we find that when we stop to figure the extra cost of handling the tile after they leave the machine, and the loss that comes from a high percentage of seconds and culls produced, the gain is negligible. When added to this, there is an increased die cost, an increased maintenance cost and an increased time loss in making adjustments, we find that the cost of manufacture is less with a single-tile die than with either of the other types.

There is one principle that is fast gaining recognition in connection with all machine-made products, not only in the clayworking industry, but in all other important trades; it is, *that it does not pay to try to make more pieces at one time than can be perfectly made, and that can be removed without danger of spoiling.*

Single-tile dies are cheaper in first cost, cheaper and easier to maintain, are simple in construction, give very little trouble and require very little attention during the operation of the machine.

(To be Continued)

Buying Face Brick

In Which a Woman Tells How She Was Transformed from a "Prospect" into a "Signed Order"

By Louine Worden

ARTICLES DEALING WITH THE SALE of face-brick are common. In them, the writers show the most effective way of approaching the buyer and of making a quick and profitable sale. Here, for the first time, is the other side of the medal. The writer of this article, in a series of letters to a friend—the wife of a brick manufacturer—tells of the impressions she received, while listening to the "sales talks" of face-brick salesmen.

(Concluded from June 15 issue)

I AM PERFECTLY SURE THAT if my Willing Worker Salesman had known I was going to ask so many questions, he would never have suggested my going on an inspection trip through the "fine residence district" and in his very sumptuous car. From the very moment I first crossed his path, I seemed to have taken the joy of living away from him, with my questions of quality and freight. And now, seemingly, I had capped the climax by noticing the chalk-like stain on the brick walls he had shown me, and wounded his most sensitive feelings when I asked what it was.

When he answered "efflorescence" to my question as to the identity of that white-washy stuff, he had the air of a sacred martyr. I knew, by the sad expression on his face, that he was aching to throw up the whole attempt to sell me some face-brick, and to close the incident with a haughty "Home, James"—addressed to the chauffeur.

But really he was game to the last. During a slight—very slight—interval of silence, my mind flashed back to the salesman in the fern-bestrewn showroom, and I wondered what effect that same "efflorescence" question would have had upon him. However, the young man with whom I was driving started to deliver a monologue on the subject, and I had an insane desire to laugh, for the man looked a perfect picture of what a friend of mine calls "sunk in sodden sorrow."

He never looked at me—he had his gaze fixed straight ahead—as if he were reciting a lesson, or saying his prayers. He told me that the white deposit I had seen was due to peculiar conditions — conditions which brought out certain salts that were present either in the face-brick, in the mortar, or in the backing-up material. And he admitted that under certain conditions, this discoloration *might* show on *any* brick wall. For instance, he said, after a heavy and long continued rain, the walls might become saturated and later, in drying, the moisture that had been absorbed would creep to the outside of the walls as the building dried off in the sun.

I am going into this little monologue in detail, because I think that brickmaking hubby of yours will be interested—he must have troubles of his own along this line, and some day he, too, may be exposed to the merciless questioning of some builder who will have a "Miss" before her name rather than a "Mr." So, while the engine purred and the car ran toward another section where the "fine residences" were guiltless of the white deposit, the dispenser of face-brick and information touchin' on and appertainin' to face-brick, went on with his well prepared recital.

We left the moisture "creeping" toward the outside walls, which, my dear, is the "face" of the building. Well, in its "creeping" process, it carries, (it seems) any of those salts that may be lurking in the cement, or hollow-tile or common-brick, or lime mortar, right out with it, and then, instead of carrying those salts away, just deposits them on the face of your perfectly good house. There they stay, while the moisture that has been so active in bringing them out where they will do the most harm, flies off into the air, I suppose with fiendish glee.

Succeeding rains, the salesman said, would remove these stains. Of course, I had to put a fly in his ointment by saying that these same rains would start a fresh bunch of whitewash from its hiding place in the backing-up brick or mortar, and that it would be the same story over again. But he came back at that, and said that if by any chance, the stains did come, I need not wait for another rain, but could wash my house down with soft water and some acid—I forget just what kind, but it wasn't carbolic. Clever idea—what?

Right there I had visions of waking some rainy night after I had moved into my new home, and listening to the proverbial pattering of the drops as they struck my very modern roof (tile—not tin, if you please) and, not being able to wait until morning, dashing out on the lawn to see whether those same drops had brought out any of that abominable white stuff. Second and soberer thoughts came—it was only *after* the rain and when the sun was shining that the stains appeared, and mine would always be a daylight inspection.

We stopped at a new house, which was a little beauty, and as clean and free from white-wash as could be. It seems to me that people who live in brick houses might get the habit of comparing notes as to whether, or not, their houses had ever had the horrid white-wash disease that the learned face-brick men call "efflorescence." It would be just as reasonable as bragging about one's children having had, or never having had (as the case might be) diphtheria or measles.

By this time, friend Guide had cheered up quite a bit, seeming fairly happy. I found it rather hard to translate the ideas conveyed by these city residences to the outlines of my home, for, while they were so close together as to seem snuggling, and depended upon clever awnings to protect their windows and porches from the sun, my house was to be built in a ready-made setting of big old trees and close crowding woods. We sat back, comfortably, and discussed the different kinds of brick, the fancy bricklaying and the advisability of this particular kind of craftsmanship. Once off the subject of efflorescence, the salesman was quite blithe and gay—even joked, as he gave the chauffeur word to proceed. I found myself explaining the difficulty I was having with the contractor who was working on my foundations, trying to make him understand that certain trees which grew close to the place where my walls would be built, were to *stay there,* and not be cut down. One particular tree, he said, would have to have a special window or arch made for it, and I guess he thought I was insane when I said that I would ask the architect to put a window right where the tree could look in—or grow in, for that matter.

"Then He Unfolded His 'Big Sales Talk' and It Won!"

I was deep into that subject when I happened to glance at a house we were passing—a handsome residence about four times as big as anything I would have considered building. The design was stately and the brickwork soft and beautiful. By my dear—that house wasn't spotted—it was fairly *covered* with white-wash. I, myself, leaned over and asked the chauffeur to stop, and I am sure I nearly gave the salesman heart-failure when I asked him whether, *if I built with brick at all,* I must live in mortal terror of that white stuff spoiling my house after every rain, and then waiting until the next rain to be washed off and given a fresh start. That would be worse than having a family skeleton that you were never sure would stay in the closet and not parade before the whole world. He called my attention to the fact that we had seen many houses that had no sign of the white stain—yet here we were, facing an exceedingly bad example of a house that *did.* How he would have liked to have told the chauffeur to drive on—but you see, I had given the order to stop, and he was too polite (or too politic) to order otherwise. There was nothing else to do but talk efflorescence, and talk it we did.

From what he said, I really gathered a very good idea—it was that salt will travel. He went back to his boyhood days, when he used to watch the capillary attraction (I'll bet he did not call it that when he was sixteen) shown by the placing of an empty goblet in an ordinary saucer containing common table salt dissolved in water. Within a few days, the salt had begun to rise evenly around the tumbler, and, by keeping the salt which remained in the saucer quite moist, the crystals could be made to not only cover the outside of the tumbler, but the inside as well. So you see, if there is any salt in the backing-up brick, or in the mortar, or in the face-brick itself, a given quantity of water brought back to that salt will make it "go" and it has a way of "going" out—over nice clean things, like houses and glass tumblers.

We could easily see that the discoloration on the veranda of the house we were anchored to or near, came out of the mortar joints and was creeping over the face of the brick. Evidently, the brick itself was free from salt and much more dense than the mortar joint, for the white stain *did not spread from the brick* to the joint—it spread from the joint to the brick. This proved that the face-brick was all right—that it was not only guiltless of having any salts of its own to give up, but refused to carry any other fellow's salt out into the open air. And we could also see that the discoloration was worse where the wall looked damp—as though a leaky drain or conduit was concealed there. I suggested this, and he said "Yes," rather weakly. In the words of our athletic friends, I think he was "all in."

I told him I was ready to move, and he told the chauffeur to start back for the business district. As a final trial to regain my lost confidence (for then I was as despondent as the poor man) I asked if there were any brick made, homely or pretty, that he was *sure* would not show this stain, if the mortar could be "doctored" to make it less porous. From the bottom of his heart, I believe, he answered that he did not believe that any such brick had ever been made—or at least, his firm was not in a position to guarantee any such thing. That seemed to end the matter.

After looking at a few more houses, I pleaded an engagement and asked to be left downtown at one of the shops. I really was going to the architect's office, but I was afraid, if I asked to be put down there, Mr. Salesman would follow me in and I would not be able to blow off steam.

I had made up my mind, by that time, that I would throw the entire responsibility on the architect, and let him select the brick—*if I used brick at all.* It seemed to me that I would have to trust to luck, anyway, and as for gambling on what kind of brick I ought to buy in order to be safe and sure against white-wash, that I would not do. I never did have any luck at games of chance.

The architect was not in his office when I arrived, but as he was expected shortly, I sat down to wait. I am glad now that I did, for I had a chance to think over all that I had heard and the things that had happened. All women are privileged to change their minds, and I changed mine back and forth so many times that I hardly remembered where I had started. There I sat—me!—with a mind of my own that at least escapes the stupid class, and ready to give in that I was not capable of selecting the outside walls of my house! That settled it.

I fairly pounced upon the architect when he came in, and I sputtered at him so fast that he actually laughed in my face. I suppose I was perfectly ridiculous, but I made him understand that instead of buying my face-brick from the concern to whose offices he had taken me, or of letting him decide what face-brick I ought to buy, that I would take him with me to the other brick concern's showroom, and hear what that other salesman had to say.

Of course, I had to admit that I had already visited that second showroom, and generally I made a very good job of confessing. The architect agreed, and followed my suggestion that we take a full set of plans with us. I was prepared to follow the matter to the bitter end.

We telephoned the second brick concern, and found that the salesman I had seen earlier in the day was still there, and although it was late in the afternoon, we found him, suave and smiling, as he had been in the morning. Evidently the salesman and the architect were on speaking terms, for after a few preliminaries, the plans were unrolled, and one point settled, at once; this was, that the kind of brick that looked well in the Colonial type of house would not do at all, for mine. My little nest could never be so austere and dignified as to require brick of that kind. The salesman led us to a panel that contained bricks with the texture and colors that he believed would suit my style of house. They were not, he explained, laid up in the way that he would have wanted them laid to bring out the full effect he thought should be produced in the lines shown by my plans.

Then he unfolded his "big sales talk" and it won! The colors of the bricks in that panel were soft, dull, dead greens, greenish grays and rose tints—not red, but soft, dull rose. His idea was to use the greens at the base of the wall, and to shade through the greenish grays to the rose tints—the latter being well toward the upper part of the walls. Does that sound to you like a Tiffany vase or a piece of Rookwood? It certainly did to me. And when he explained that it should be laid in a very dark raisin-colored mortar that would be almost invisible (since it would blend with all of the colors) I was completely won, and I could see that the architect was impressed.

I asked if there were any brickmasons on earth who would so select face-brick as to make the colors run in that entrancing color scheme and heard, to my astonishment, that this modern brick-selling concern had a man (or several, for aught I know) for that very purpose, and that the expense of selection was included in the price per thousand. Immediately I had the feeling of a cold shower impending. What *was* that price per thousand?

The answer came quickly—the price was two dollars a thousand more than the price that had been written into my specifications. I looked at the architect, and turned to gaze out of the window. I heard a voice at my elbow say "If you went downtown to buy a hat for ten dollars, and, after being almost discouraged, you found exactly what you wanted for fifteen, how long would you hesitate about paying the extra five dollars? Perhaps a few minutes, but not long. Here is a case where, for sixty dollars more than you had intended paying, but you will get something that absolutely meets your artistic plans. Few people, comparatively, will see the inside of your house, but the general public will judge you and your taste by what they see from the street. That hat might last you a few months—the house will be yours, perhaps, for a lifetime."

I was all over being sulky, but I still had a question or two to ask: Was the price he quoted f. o. b. cars in the city, and would I have to pay the freight and teaming to my lot? He told me that not only was the extra freight included in his price, but that the brick would be delivered by team, right to the building site. I glanced at the architect with a sort of "Didn't I tell you so?" look in my eyes, but I did not want to settle it just then. So I asked if there were no other brick—that could be sold at the specified figure, and that would do as well.

The plump salesman was perfect. He said he had other bricks, but that none of them would give me the effect he had described, nor so closely approximate the softening effect of time. Most face-brick, when newly laid in the wall, had that "just finished building" look that I wished to avoid. You know, my dear, how we dislike new baggage. It looks as though you were on your first trip away from home. I didn't want my house to look like a new Gladstone bag on a honeymoon trip.

I was hypnotized again, and I could feel myself giving the order, but I was holding back until the very last to start the question of efflorescence. I knew that I would hate to hear that my house, built of those wonderful brick, would wake up some spring morning with a hideous scab on its face. The subject had to come up some time, so I went at it. "Will these brick show efflorescence?"

Without one minute's hesitation, that blessed salesman answered me *in the negative.* I gasped in my astonishment. I knew that he was sincere and that he spoke with authority. The concern he worked for was well known and had a reputation for square dealing. I asked for an explanation.

He had the good sense to realize that most women have at least a smattering of chemistry and that one who has some recollection of laboratory work in school is flattered to think that a man gives her credit for knowing something beside the three C's—clothes, cooking and children. So when that brick salesman explained how they went about it to insure their brick against white-wash, and delved a little into the realm of physics, I was delighted.

In a glass of water, he said, the scum that had formed on brick made of the same clay in other days, was dissolved. After many experiments, an acid was found which, when added to the saline solution, formed an insoluble precipitate. Then the clay from which the present brick are made was treated with this acid. Thus, when the brick were burned, the salts in the clay were in such a form that the weather would have no effect upon them. What was done, then, to prevent the mortar from starting some of its deadly work in bringing salt from the backing-up material and depositing it on the face of these very superior brick? Why, that was simple—use a waterproofing compound in the mortar. Did this add to the cost of the mortar? Yes—a trifle—but was it worth it? I looked at my architect and said "Yes" with my eyes, if not with my lips. At last I had one answer as to why one brick was better than another and, at the same time, some information as to why one brick salesman was better than another.

My architect was very much pleased with affairs so far. He raised the point, however, that he was afraid that the dampness of the ground would affect the color of the brick in the lower courses. Back came my smiling brick salesman with the suggestion that about two dollars' worth of slate, laid either on top of the foundation wall, or on the first course of brick above it, would prevent that trouble. He also suggested that this was a good plan to follow under all conditions and in all residence work.

I was satisfied that I had done the best that could be done and I was tickled pink to think that I had practically put this thing over without the advice of my architect. My nice salesman seemed to sense that this was an opportune moment for him to be somewhere else, so he excused himself and gave me a chance to hear what my architect had to say. That affable gentleman looked over the brick, tipped his head from side to side, closed his eyes and, I suppose, had a vision of my house in its surroundings. He finally woke up and said that he could see no objection to my using that brick—particularly if they were "efflorescence proof" as the salesman claimed them to be.

When the salesman returned, we told him how we both felt. I do not remember who did the talking, but some one got it over to him that all we were worrying about was the danger of the deadly white-wash. In answer, that wizard salesman agreed to prove his sincerity and faith in his product by a written guarantee, binding his firm to keep the house free from efflorescence, if an approved waterproofing compound were used in the mortar joints, and ordinary precautions in the way of a damp-course at the base of the walls. Evidently there were to be no sleepless rainy nights for me.

I asked the two men to finish whatever details were necessary to close the order. I knew that an awful load had been taken from my shoulders and I went wandering all over that showroom, humming "Home, Sweet Home." I could "frivol" now, to my heart's content and I could see myself, for the next several weeks, making glad the hearts of friends of mine, by continued and frequent calls and telephone messages.

As the architect and I were leaving the showroom, the brick salesman was perfect. I don't dare gush over him any more, for fear you will think I am crazy about him. I am sure that he is married and has two or three children—perhaps twins. Perhaps, too, he lives in some suburb, in a frame house—they tell me that brick salesman are just such hypocrites. Anyway, he was too decidedly nice not to have been snapped up, long ago, by some girl with a mind on orange blossoms.

He seemed to have made a favorable impression upon the architect, also, for I heard Mr. House Planner say something about two or three other houses that he "had on his boards," and his intention of bringing his clients in, to see some of the brick in that office. Somehow, he seemed to have lost his taste for the concern to whose office he first led me like a lamb to the slaughter.

You may imagine that I was pleased—both of those men had benefited by a closer acquaintance, and I had been the cause of their meeting and knowing each other. Not but what they had met before, but because they had not been properly introduced, I guess.

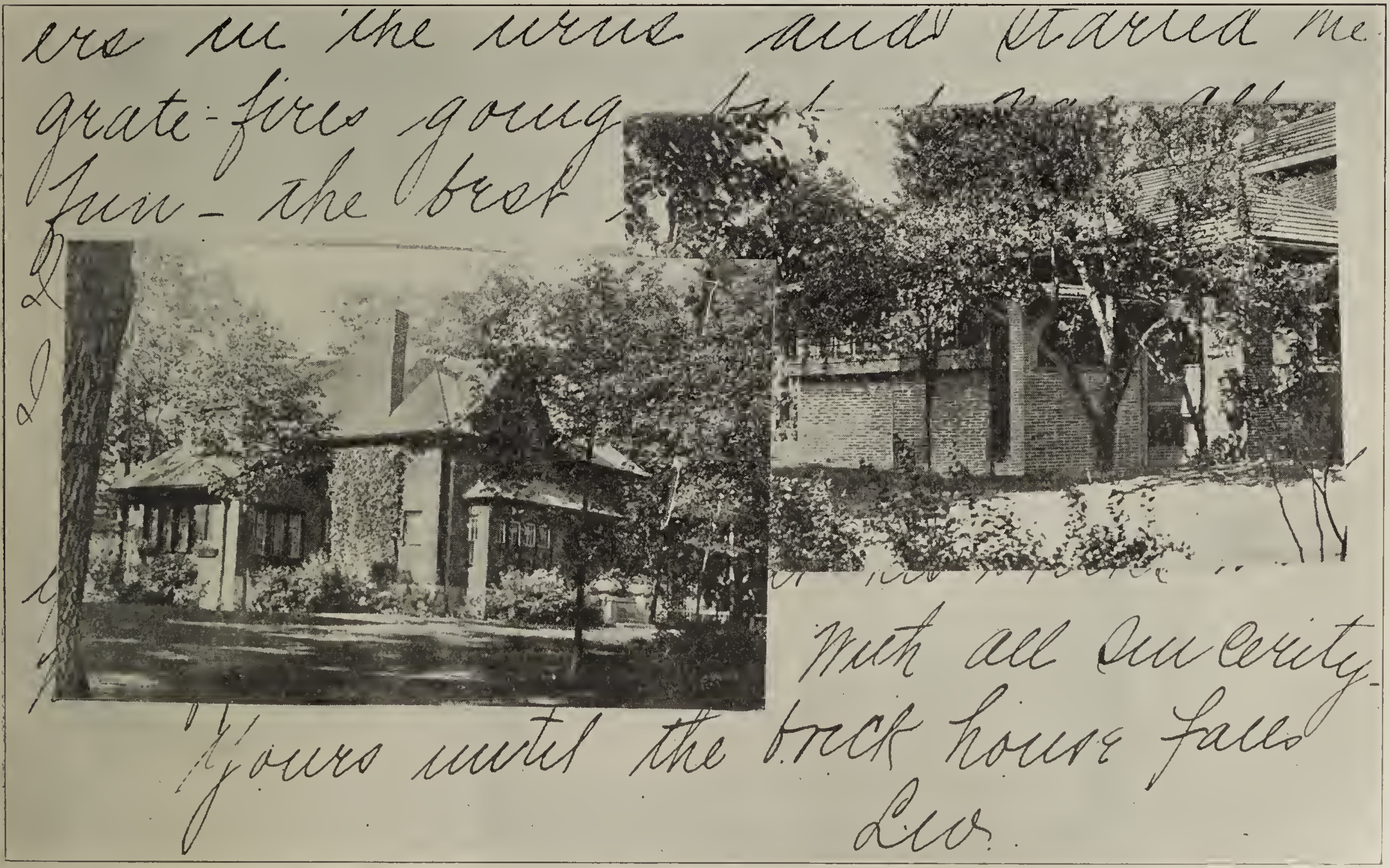
I am enclosing a couple of snap shots that I took with my kodak. These will give you some idea of the lines of the house, although they cannot, of course, convey any impression of the beautiful color effect that there is my brickwork.

One of the pictures shows the front and side, the other is the back door, with the old apple tree sticking through it—the tree that I had such a time to keep the contractor from cutting down. I kept after the nursery man and nagged him to death to have the vines and shrubs the exact size and arrangement that my old-maidish ideas demanded they should be. I worked for a year and a half, beginning at the time when I started on the plans, down to the moment when I finished planting the flowers in the urns and started the grate fires going—but it was all fun—the best of fun, and now I am wondering what mischief I will get into next.

With kindest regards to that hubby of yours, and hoping that his bricks do not effloresce, I am, with all sincerity,

Yours until the brick house falls,

L. W.



ers in the urns and started the
grate-fires going
fun – the best
With all sincerity –
Yours until the brick house falls
Leo.

New York's Experience With Asphalt Blocks

That New York City has very little good to say about asphalt-block pavements is brought out in the annual report of the Bureau of Highways, Borough of Manhattan, New York City. This report is submitted by Henry Welles Durham, chief engineer of the Bureau, and states his experience with this type of pavement. The report as published in "Engineering News" follows:

The Borough of Manhattan, New York City, contains at the present time a very extensive area paved with asphalt-block, amounting to about 2,000,000 sq. yds., of which one-half is still maintained under guarantee contracts. Arguments have been presented to show that the present pavements of this type in Manhattan are being maintained at a less average cost per square yard than those of sheet asphalt, with which type it naturally competes.

In interpreting these cost data, however, it must be borne in mind that a large proportion of the asphalt-block pavement is in the northern part of the borough where traffic is comparatively light. The cost data for the asphalt-block pavement are not, therefore to be compared with the average for sheet-asphalt pavement maintenance throughout the entire borough, but only with the cost in corresponding sections. If this is done it shows no such advantage on a maintenance-cost basis.

The advantages urged for asphalt-block are based on (1) the theory that it is slightly less slippery than sheet asphalt, which, however, experience shows is not the case, and on (2) the claim that it can be more easily repaired by the removal of individual units, whereas sheet-asphalt repairs require an expensive plant and expert labor.

Asphalt-block has the advantage that it may be laid like any other block pavement with the advantage of that continuity pertaining to all bituminous-composition pavements. It has the disadvantage that the individual blocks are not composed of hard unyielding material, and hence are not rigid or able to maintain their original shape under pressure or change of temperature; in consequence asphalt-block pavement has not the repair advantages of the other types of block pavement. It has the additional disadvantage that it can not be repaired by the method used for other bituminous pavements, but must have individual blocks substituted by others, which being new do not conform to the altered shapes of the old ones.

On many asphalt-block streets, instances can be pointed out where the blocks have traveled, in some instances many feet, in the same way that sheet asphalt flows in hot weather; but unlike sheet asphalt, the defects cannot be remedied by cutting out and replacing.

Where asphalt-block has been laid under heavy traffic conditions in the Borough of Manhattan, it has failed to give satisfactory service. Notable instances of this can be seen on many streets and particularly on upper Broadway. The asphalt-block pavement on Broadway north of Manhattan St., which was among the worst in the city, has already been replaced with granite block on the hill and with sheet asphalt on the level portion.

Attention is also directed to the asphalt-block sections of the test pavements on Second Ave., which are among those which have required the maximum amount of resurfacing during the past two years. At one place, between 15th and 17th St., the surface traveled in the direction of traffic to such an extent as to expose the foundation, the movement amounting to over 8 ft.

The fact that there are large areas of light-traffic streets where the maintenance cost for the asphalt-block type of pavement has been very small proves nothing. The same could probably have been paved satisfactorily with other materials. No instance can be shown where asphalt-block has continued to have a satisfactory surface under dense traffic similar to that which has been shown for many years by the sheet asphalt on Fifth Ave.

The greatest drawback to asphalt-block pavement has been its repair after several years' service. Its advocates have pointed to the low figures for percentage of repairs in the light-traffic streets as evidence of its economy, but have immediately thereafter urged that its poor showing in Manhattan is due to the insufficient repairs.

The only method advocated for the repair of asphalt-block pavement is that of removing the blocks over large areas where worn, sorting out such of the blocks as can be used again and laying these culls all together in repaired areas, the remainder being surfaced with new blocks. But such a method of repair presupposes large extents of defects, which, in turn, runs counter to the arguments as to the desirability of prompt maintenance down to the smallest defect; and as to the relative low percentage to be resurfaced as compared with other types of pavement. One or the other argument must be abandoned, and the adoption of either alone leaves its advocate with a poor case in view of the facts.

No One Can Be Right All of the Time

"Brick and Clay Record" tries to be as near "right" as it can, but it knows that **you can make this magazine better,** by a few minutes' thought and a few seconds' action.

Please read that Opposite Page

YOU BELIEVE IN CO-OPERATION?

YOU BELIEVE in helping yourself by helping others—why not help yourself by **helping us?** We want to publish a better paper than we have ever published—the best paper that clayworkers have ever seen.

You can help us to do this, because **we need your ideas**—your viewpoint. We want to know what you think is best for **your particular branch** of the clay working industry and for **your own particular plant.** Your advice will help us and make us better able to earn and keep your confidence.

Remember—your helping us, just now, is like planting seed in your own ground. You have a fixed subscription price—**the better "Brick and Clay Record" is, the more you get for your money. The Heavier Your Investment of Helpfulness, the Heavier Your Dividend of Service.**

It Won't Be Very Much Trouble to

¶ Read this page carefully, and, when you have caught its import, be one of those who are willing to give a moment's thought and

Advise a fellow who Needs Advising!

¶ Tell us—please

Which of the features now being published in "Brick and Clay Record" have most value and interest to you?

¶ Put down numerals, 1, 2, 3, 4, 5, and so on, to indicate which you think is most important—that will be number 1—and the next in importance will be number 2, and so on, down to number 12—that will be the one you think least of.

¶ These features are

The Editor's Corner

News Articles and News Features

Feature Articles

Selling Articles

Articles of General Interest

Technical Articles

Questions and Answers

The Letter Box

The Superintendent

Machinery and Equipment

Freight Tariffs

Semi-Monthly Trade Review

¶ This covers, pretty well, what we are doing at the present time, but we, with you, are looking to the future.

¶ Tell us—please

What phase of your business you think we are neglecting?

....

....

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....

What sort of articles do you think we should publish, in order to make the magazine more interesting to you?

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....

What errors of judgment—of policy—of direct statement—have you noticed in our pages during the past year? This refers to the advertising pages as well as to those devoted to editorial matters.*

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¶ And tell us—please

Do you read the advertisements carefully and critically?

....

Please think about this—it isn't right, in a mutual proposition, to let the other fellow do all of the work.

Nor is it right to criticise him to others unless you are willing to tell him his faults right to his face.

Have you one great hobby that you would like to see us take up, and develop?

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* You might write us a letter, if you have a good deal to say right there.

Tear Out This Whole Page and Mail It

To Brick and Clay Record, 445 Plymouth Court, Chicago

Name ______________________________

Address ______________________________

(We will not use your name)

The Complete Building Show

Coming Exposition in Sixth City Promises to Surpass All Previous Exhibitions of Structural Materials

DURING FEBRUARY, nineteen-sixteen, there will be held, in Cleveland, Ohio, the most comprehensive exhibition of building materials that the world has ever seen. Patterned after the London (Eng.) Building Trades Show, it will open its doors to every material that enters into building construction. For this reason, it will have educational advantages that would be lacking, if it were a "clay show" or a "cement show" or any other kind of an exposition that limited its exhibits to one product or one class of building material.

Here is Cleveland's Claim to the Right to Hold the First Complete Building Show Ever Held in America

CLEVELAND, OHIO—the home of the National Paving Brick Manufacturers' Association, the Hollow Tile Manufacturers' Association of America and of the Society Advocating Fire Elimination—willl occupy a prominent place in the public mind in February, 1916.

The particular reason for this prominence, at the time mentioned, is the fact that the first Complete Building Show ever held in America will be in progress from the 16th to the 26th, and the "Sixth City" will be "At Home" to all America.

This monster exposition will be patterned after the justly famous Building Trades' Exposition of London and will rank with it in scope and importance. Cement shows, clay shows and real estate shows have been held, but the Complete Building Show that will be held in Cleveland will be the first to embrace every phase of domestic and commercial building and of the interests allied with these activities.

This exposition will in no sense be a trade show. It is an educational demonstration for the man about to build and it will not be conducted for the purpose of reaping an immediate monetary return. It has no professional promoter, but is in charge of an advisory committee appointed by the fifty or more stockholders who have put their money, without hope of financial gain, into the enterprise. Its officers and directors are manufacturers of or dealers in building materials.

The secret of the assured success of the coming Cleveland exposition is that it will "move." There will not be a single "dead" exhibit. Several complete houses will be erected in the exposition hall. These will be furnished complete and the grounds surrounding them will be fenced in and planted with shrubbery.

A distinct feature will be the architectural exhibit in which will be shown the drawings submitted in the contest that is to be held by the directors of the exposition. This will give an opportunity for the showing of the plans and specifications of a building, together with the construction which these plans and specifications cover and of the completed structure. The contest will be for small houses of moderate cost and of fire-resisting type.

As a part of the advertising campaign for the exposition and at the same time, a demonstration for safe building, a house of fire-resisting construction is to be built which will

The Coliseum in Cleveland, Ohio, Where 65,000 sq. ft. of Floor is Available for Exhibits of Building Materials

be given away in connection with the show. Every person attending the show will have an opportunity of contesting for the house and it will be the aim of the exposition authorities to embody in this house as many types of fire-safe construction as is possible without building what might be called a "freak" structure. This will give prominence to many approved materials that enter into safe buildings without any undue accent being given to any one manufacturer.

The exhibits are to be grouped into four general classifications: Building Materials and Construction; Equipment and Devices; Interior Finish, Decoration and Furniture; Real Estate and Garden Planning.

With exhibits thus grouped, the hit-or-miss fashion of placing the displays often followed in so-called real estate and building shows, will be eliminated.

In short, the men back of Cleveland's Complete Building Show have laid their plans to make it the most complete exposition from an educational standpoint that has ever been held in this country. In a letter describing some of the plans which have been formulated in connection with this exposition, Ralph P. Stoddard, Executive Secretary of the Society Advocating Fire Elimination, wrote:

"We are truly aiming to make this show educational. We feel so confident that clay products and the accepted fire-safe materials can profit in comparison with frame construction that we are actually pleased to have the two exhibited side by side. To my mind, the space in a show of this kind corresponds to the editorial columns of a newspaper, while space in a clay show or even in a show where fire-safe construction only was allowed, more nearly corresponds with the display advertising in a newspaper. There is an editorial value to every display made in this show which opens its doors to every material. All of the foregoing is our answer to everyone who makes any inquiry regarding the advisability of admitting frame construction to this exposition, including the lumberman himself.

"We have already closed for a full size house with hollow tile walls, one-half of which will be faced with brick and the other half with stucco. There will also be built in the show practically a full sized house employing brick alone. The Association of Metal Lath Manufacturers are now negotiating for space upon which to erect a house entirely of metal and concrete and they also are earnestly seeking for a method of facing the metal construction with brick. If any contractor is able to work out this plan he and they together will show the practicability of facing metal construction with brick as well as with stucco.

"We feel that there is a great deal of difference between our show and so-called real estate shows because we embrace absolutely every phase of building trades. We have splendid co-operation on the part of all the trades and such associations as the Electrical Contractors, Plaster Contractors, Hardware Association, Decorating Contractors—many of whom are stockholders in the show.

"To my mind it would be mighty unfortunate if the clay products that enter into building construction are not well represented. To miss an opportunity of putting burned clay material in competition with every other construction material when the competition is to show which is best, rather than which is cheapest, seems to me too good to be missed. It would seem that the clay products ought to be able to convince the public with the proper display that their material is as good, as beautiful, as adaptable and as economical as either cement or frame.

"I feel confident that we will have a splendid clay section in the show because many of our local members are brick dealers and they will see to it that the material they are selling will be properly shown.

"I think I ought to add that while the Society Advocating Fire Elimination promoted this show in the beginning, that the show company and the Society Advocating Fire Elimination are absolutely distinct organizations, the show company embracing many people not allied with the S. A. F. E. movement."

To all of which "Brick and Clay Record" adds its hearty endorsement. With the experience gained in two clay shows, the manufacturers of burned clay products should be able to make a splendid showing and without any excessive cost. With the time allotted—seven months—ample opportunity is given to lay plans that will be properly economical and at the same time, effective.

Further details of this exposition will be printed in this magazine from time to time as they develop, and in the interim it is suggested that all manufacturers of clay products whose material enters into building construction keep themselves well informed as to the plan and scope of America's First Complete Building Show.

Following the line of thought suggested in the "Editor's Corner" in this issue of "Brick and Clay Record" it would be well to spend some of that time, also, in developing a sales-talk that will not be based on brick or tile's being "better" than something else.

Questions and Answers

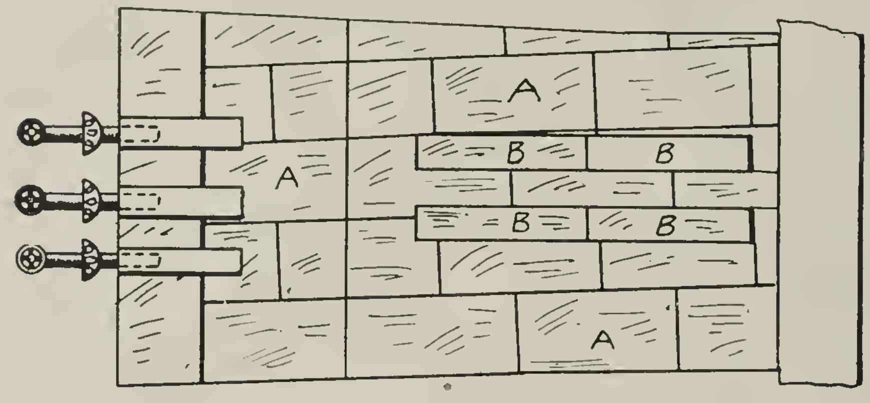
Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Salt Glazing in Oil Fired Kilns

679. *New Jersey—Can you give us any information on the use of salt for glazing clayware burned in oil-fired kilns? Should the salt be fed in with the blast from the burner or introduced into the furnace through a separate opening, so that the flame may play upon it on the furnace bed?*

The above question was published in the June 15 issue and an answer given which was admittedly theoretical. Since that time a letter has been received from E. J. Jones, of Canton, Ohio, who cites an experience with natural gas as a fuel. As his plan should work equally well with oil under pressure, it is given in detail. His letter reads as follows:



Looking Down into the Fire Box

"I am enclosing sketches of the fire boxes that I used and with which I had successful results firing with natural gas on the salt glazed face-brick.

"Two brick on edge (B in sketch) were placed about opposite the spaces on either side of the center burner. Brick (C) are laid loose on hob of kiln in front of the firing arch and in some cases and stages of firing it may be found necessary to lay one or two courses more to regulate air-intake which depends entirely upon the draft construction of the kiln. The table is to cover the entire surface inside of the fire-box. I might add that in throwing in the salt a burner should grasp the handle of the shovel and give the shovel a twisting movement so as to scatter the salt over as wide an area as possible—that is, covering as large a space on the table as he can rather than throwing the salt in one pile.

"I have also noted that the shorter the salting period the more brilliant the glaze and the less iron drawn—for instance, using five barrels of salt in three hours gave a much brighter glaze than using the same quantity in six hours, all other conditions being the same.

"I found it better to use a long yellow flame instead of a short blue flame in salting and to use one shovel of salt each round, making three rounds about ten minutes apart for each salting period.

"You will note by the sketches that the opening was left under the old coal-fire arch just large enough to admit a No. 2 dirt shovel.

"By adopting the above process I was able to produce several kilns of brick with full bright glaze and color where before this method was used we could get hardly more than the top third of the kiln to take a full glaze."

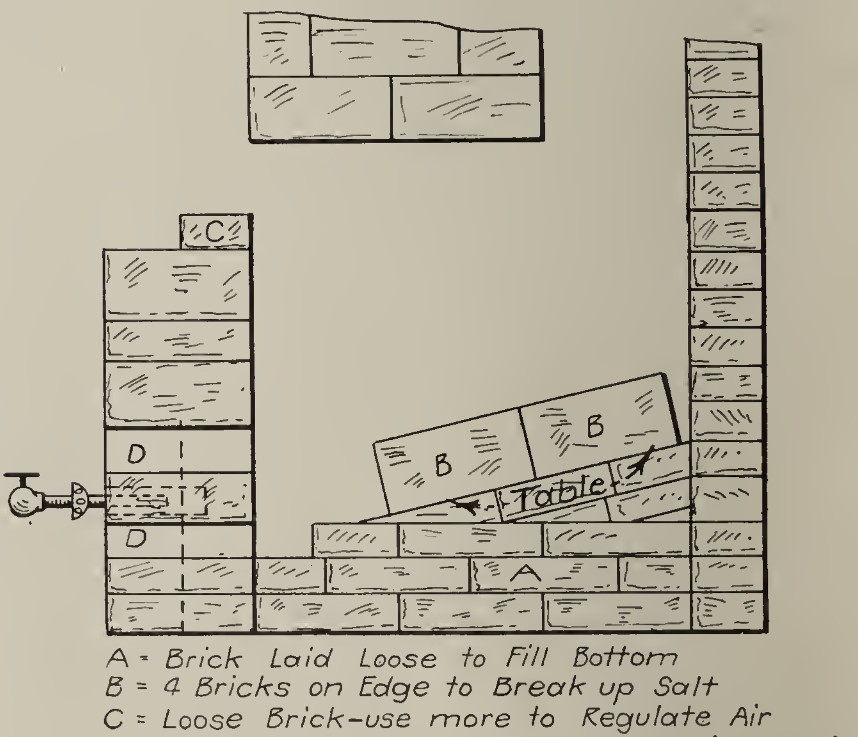
John A. Miller, president of the Rochester Clay Products Company, Rochester, Pa., writes:

"If your New Jersey correspondent (Question No. 679 in June 15 issue) will write the Monmouth Pottery Company at Monmouth, Ill., they may give him the information he asks for. They made salt glazed stoneware at that plant several years ago and used oil for fuel with steam pressure. The writer started them in making a white opaque glaze and they discontinued making salt glazes."

Wants to Learn Brickmaking

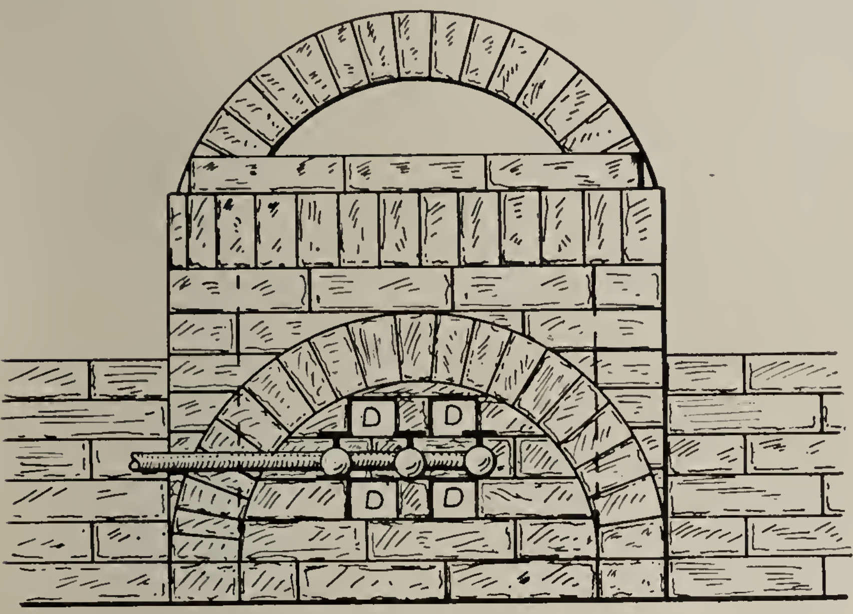
678. *Pennsylvania—I want to find out how much you charge for a course of lessons that will teach a man all that it is necessary for him to know in order to fill the position of superintendent of a brickmaking plant. I can set brick and understand something of burning and I am foreman of a setting gang at the present time. I am working in a fire-brick plant now, and would like to have more experience. Do you teach by mail?*

The only place where brickmaking is taught is in the well known school of experience. It cannot be taught by mail, for the reason that every clay has some property that is different from every other clay, and every product some process which is peculiar to that particular product. Your ambition to become superintendent is laudable and your desire for knowledge the beginning of wisdom. If you have learned all you


C
D
D
B
B
Table
A
A = Brick Laid Loose to Fill Bottom
B = 4 Bricks on Edge to Break up Salt
C = Loose Brick-use more to Regulate Air
D = Holes to open or close for Regulation of Air

A Cross-Section View of the Furnace

can learn in the yard where you are now employed, and see no chance of ever getting away from the setting gang, it would be well for you to go to some other plant, and apply for a position. When you do that, be sure and tell the plant manager that you are looking for something more than a "job," and that you want to learn the business from the start.



Front View of the Fire Box

Get a position, if possible, where you will be employed in the daytime only, and go to some town where there is a night class in the public school. There you should apply yourself to the task of learning to read and write the English language correctly, for as you progress in the practical side of the work, it will be well for you to read all of the books you can find that have been written about brickmaking. These will give you the theoretical side of the business, and tell you of the work that is being done in the industry. The night classes will help you to study, and this is one thing that you will find necessary, if you are to be anything but a foreman. There is a great deal to being a superintendent beside the practical knowledge of the raw material and the action of the fire upon it. There is more, too, than the power to direct men and see that each one gives the concern that employs him the full value of the pay envelope he receives. One thing that a superintendent should have is a general knowledge of clayworking that will enable him to meet and overcome the unexpected difficulties that arise, from time to time, in every plant. Later, when you are ready for it, it would be well to arrange to attend the short courses in ceramics that some of the universities give each year. These take from one to two weeks, and are arranged to give practical men, like yourself, a better understanding of the rudiments of ceramics.

Cannot Glaze Entire Kiln

688. *Iowa—Can you give us the name of a company which manufactures a glazing material that will glaze at a temperature under 2,000 deg. Fahr.? We can glaze three or four courses in the top of our kilns with salt but we cannot get high enough temperature to glaze the rest of the kiln without overburning. We are making glazed silo blocks and can glaze only one-third of the kiln at a burning.*

We believe that your trouble does not lie in the glazing material that you have been using (which we presume is common salt) but in your method of applying it.

Perhaps we could make this plainer by saying that we do not believe you are burning your kilns correctly if, in order to glaze from top to bottom you are so certain to overburn them. The fact that you can glaze three or four courses in the top of the kiln is proof that your ware will take the glaze at a certain temperature and that this temperature is not so high as to endanger the ware. The trouble seems to be that you cannot get as high a temperature at the bottom of the kiln as you get at the top, and this is due to some fault in your burning system. Either your dampers do not work properly or you crowd your kiln so that the heat does not get a chance to bank up in the bottom of the kiln but races through and out of the stack.

A great deal has been published on the subject of salt-glazing in this department and we are under the impression that if you will follow the advice that has been given other readers, you will have results equally as good as those which they have obtained. It may be that you have not seen these articles and if so, we will be glad to have you write us again on the subject and to see what can be done in the way of sending copies to you.

It looks to us as though you might be a pretty good "prospect" for some manufacturer of pyrometers.

Attachment to Make Rough Surfaced Face-Brick

686. *Indiana—We are in the market for an attachment to make rough faced face-brick. We make a stiff-mud, side-cut clay brick and would be pleased to have the names of some manufacturers.*

We do not know of any concern which makes an attachment for the purpose of roughening the surface of the clay bar, other than the shop that builds the machine which is supplied through the Hocking Valley Products Company, of Columbus, Ohio. This machine makes the "rug" brick, and is sold by the company mentioned to its licensees—that is, the machine is furnished at cost, but its use makes it necessary to pay a royalty of something like 25 cents per M. Rough surfaced face-brick are made, however, in hundreds of plants, without the use of any special attachment, other than the placing of a series of wires at the mouth of the die. These wires are three in number, one being horizontal and two vertical. They are placed so as to cut about 3/16 of an inch off of the top and each side of the clay bar. It is well to space the wires so that the vertical wires are at least ¼ of an inch away from each other, as this will give sharper corners to the two ends of the face of the brick. The wires should be stretched very taut, as otherwise they will bend and give the face of the brick a convex surface.

Relative B. T. U.'s in Slack and Lump Coal

684. *Ohio—How much difference, as a general rule, is there in the amount of heat you get out of fine coal (nut, pea and slack) and lump coal?*

There is no difference in the heat producing power of any one coal, whether it is broken up into large lumps, or small. There is, however, a considerable difference in the amount of heat that is obtained in burning it, the difference being dependent upon the method of burning that is used. For instance, with a slanting grate, lump coal would be held on the grate until it was entirely consumed—that is, turned to ash. Slack coal, on the same grate, would be partially lost by dropping through the grate before it was burned, and through caking, and so stopping the current of air that is necessary to its effective combustion, and to carrying the heat obtained to the point where it is wanted, as, for instance, the interior of a kiln.

Have You a Fountain Pen?

If it works, use it on page 27.

If it is like most fountain pens and has gone on a strike

Use An Ordinary Pen and Ink

The Superintendent

A Department Wherein Our Readers Contribute the Result of Their Own Experience for the Benefit of Their Brother Workers-in-Clay

DISCONTINUING the policy of offering a prize for the best idea submitted for this department, "Brick and Clay Record" will, until further notice, print a series of carefully computed tables for the use of superintendents in clayworking plants. These will be contributed by a well known authority on plant construction, the subjects being chosen with due regard to clayworking needs. As in the past, suggestions and short articles that deal with labor-saving and cost-reducing ideas will be welcomed, and will be paid for as published.

Silo Capacities Required for Feeding Cattle

TABLE I. CAPACITY OF ROUND SILOS. (PROF. F. H. KING.)

Inside Diameter	Height	Capacity Tons	Acreage to fill. 15 tons to the acre	Amount that should be fed daily. Pounds
10	28	42	2.8	525
10	30	47	3.	525
10	32	51	3.4	515
10	34	56	3.7	525
10	38	65	4.3	525
10	40	70	4.6	525
12	28	61	4.1	755
12	30	67	4.5	755
12	32	74	5.0	755
12	34	80	5.3	755
12	36	87	5.8	755
12	38	94	6.4	755
12	40	101	7.3	755
14	28	83	5.5	1030
14	30	91	6.1	1030
14	32	100	6.7	1030
14	34	109	7.2	1030
14	36	118	7.9	1030
14	38	128	8.5	1030
14	40	138	9.2	1030
16	28	108	7.2	1340
16	30	119	8.0	1340
16	32	131	8.7	1340
16	34	143	9.5	1340
16	36	155	10.3	1340
16	38	167	11.1	1340
16	40	180	12.0	1340
18	30	151	10.	1700
18	32	166	11.	1700
18	34	181	12.	1700
18	36	196	13.2	1700
18	38	212	14.1	1700
18	40	229	15.26	1700
18	42	246	16.4	1700
18	44	264	17.6	1700
18	46	282	18.8	1700
20	30	187	12.5	2100
20	32	205	13.6	2100
20	34	224	15.0	2100
20	36	243	16.2	2100
20	40	281	18.8	2100
20	42	300	20.	2100
20	44	320	21.3	2100
20	46	340	22.6	2100
20	48	361	24.	2100
20	50	382	25.5	2100

TABLE II. AMOUNT OF SILAGE FED PER DAY. (IOWA STATE COLLEGE.)

Kinds of Stock	Daily Ration Pounds
Beef Cattle—	
Wintering Calves, 8 months old	15 to 25
Wintering Breeding Cows	30 to 50
Fattening Beef Cattle 18-22 months old—	
First stage of fattening	20 to 30
Latter stage of fattening	12 to 20
Dairy Cattle	30 to 50
Sheep—	
Wintering Breeding Sheep	3 to 5
Fattening Lambs	2 to 3
Fattening Sheep	3 to 4

The preceding table in connection with Table I may be used to determine the size of silo needed to fulfill various conditions. For instance, if the silage is to be fed to a herd of forty dairy cattle at the rate of forty pounds per head per day, a silo sixteen or eighteen feet in diameter will be satisfactory.

How Large Should I Build My Silo?

This is a very frequent question among farmers and breeders who, having been convinced of the value of a silo, have decided to erect one, but are not sure of the amount of silage necessary for daily feeding nor the size of the receptacle wherein it is to be preserved.

The manufacturer of silo blocks should be prepared to enlighten a farmer so perplexed, for not only may such information aid in the rapid closing of a contract but it will ofttimes prevent the making of a serious error in the building of the silo.

In order to secure the best silage a structure not less than thirty feet high should be built. This depth provides a pressure in the silo which is sufficient to pack the silage tightly and exclude very nearly every particle of air. In all silos air will penetrate the fodder from the top, the extent to which this action takes place depending upon how tightly the silage is packed. In well settled silage the air does not penetrate much over an inch and one-half or two inches. Because of the fact that air spoils silage, it is necessary to remove this amount every day, and whether or not the farmer can use this quantity of green fodder daily determines the practicability or impracticability of the silo for that particular owner. Where a farmer does not have a sufficient number of cattle to make the use of a silo practical, he can greatly increase the value of his land and the fertility of his soil by enlarging the herd and feeding it on silage. In this way he can also utilize a larger percentage of his corn crop, the stalks of which are very often burned on the farm which does not possess a silo.

The above table is given to help in determining the height and diameter of silo best suited to the needs of the prospective farmer customer. It is based on observations made by Prof. F. H. King of Wisconsin, and assumes that the silage is made of well matured corn and that after the silo has been filled and allowed to settle for two days, it is refilled to the top. The amount which should be fed daily is based upon an average weight of forty pounds per cubic foot.

With very few exceptions, the silo has proven of inestimable value on the farm, and where it has not, it is more than probable that a proper size for the silo was not well considered. A farmer who builds a silo that is too large for his herd will soon find himself throwing away large quantities of spoiled silage, due to the inability of his cattle to consume the fodder fast enough to keep it from rotting. When this occurs, it usually prejudices the owner against the further use of silage, and very often his neighbors who have had no experience along this line are influenced by his mistake against purchasing a silo. Yet if this particular farmer had built a smaller structure, more suited to his needs, his experience and attitude toward the silo and silage would have been entirely different. It will, therefore, be seen that it is of vital importance to all concerned that the proper size silo be erected.

Where silage is used for summer feeding, another factor enters which must be taken into consideration. Silage spoils faster in summer than it does in winter and for this reason a larger quantity must be removed daily to keep it in good condition. It has been found by experiment that it usually requires about twice as many cattle for the same size silo in summer as it does when the weather is colder.

Effect of Steam Upon Magnesite Brick

Carbonate of magnesia or magnesite is found chiefly in Greece, Austria-Hungary, Africa, India and in California in the United States. The deposits of Greece and California are of the white massive character and as a rule of very pure quality. They are not as suitable for refractory purposes in metallurgical processes as the Austro-Hungarian magnesite, on account of composition and high cost of preparation. The white magnesites are used principally in caustic form as flooring cement and for the manufacture of carbonic acid gas, the carbonate as mined containing approximately 50 per cent of CO_2 (carbonic acid gas) which may be driven off for this purpose at comparatively low temperature. A few refractory brick are made from white magnesite, but difficulties of manufacture and high cost render the demand very slight.

It is with the Austro-Hungarian magnesite that the users of magnesite in this country are most concerned. The material occurs in a crystalline formation and is gray in color with tinges of brown. In comparison with the white magnesite it differs in composition and formation. The chemical composition is the most important difference. Comparative analyses of the two kinds of magnesite, calcined, are as follows:

	Austro-Hungarian	White
Silica (SiO_2)	2.75	2.50
Alumina (Al_2O_3)	0.50	0.25
Iron oxide (Fe_2O_3)	7.00	1.00
Lime (CaO)	2.50	2.25
Magnesia (MgO	87.00	93.00
Loss on ignition	0.75	1.00

The impurities in the Austro-Hungarian render it less refractory, and it will frit more readily at operating temperatures, which is a very important property, especially in open-hearth practice in building the bottom and repairing the slag line. In the calcined form, for commercial uses, Austro-Hungarian magnesite has a rich brown color and white magnesite is either white or a very light brown, depending upon the thoroughness of calcination.

The chief uses of magnesite brick are in open-hearth steel furnaces, copper converters, reverberatories and settlers, and electric furnaces. Its use is spreading considerably where strong basic slags, mill cinder and strongly metallic slags are encountered, such as the bottoms of forging, heating and welding furnaces.

It is an interesting fact, and one of importance to all users of magnesite, that when subjected to the action of steam, magnesite in calcined form, or even the most thoroughly burned magnesite brick, will hydrate, similarly to the action of calcined lime when water is added. This hydration takes place to equal degree in all brands of magnesite brick made in the United States or Europe. The effect of the hydration is disintegration to an almost impalpable powder. It does not seem to bear any relation to the content of lime or other impurities, as the tests showed the same results for Austro-Hungarian as for the white or very pure Grecian magnesite.

Tests were conducted by placing brick in a steam-tight cylinder and subjecting them to steam at 100 lbs. pressure for a period of two hours, all brick tested showing hydration to the same degree, though it is reasonable to conclude that the action would be somewhat retarded under lower pressure or less severe conditions.

Difficulties of this nature have been experienced in open-hearth furnace bottoms by laying the brick and magnesite bottom over a bed of refractory materials mixed with water. Upon heating up, steam is formed and the bottom may be very badly damaged by the hydration of the magnesite.

This fact, which has not been well established until recently, no doubt accounts for a number of similar troubles which have occurred in years past. It also explains cases of disintegration of burned magnesite brick which have been in contact with steam leaking from coils or steam-heated floors used in manufacturing magnesite brick. It should be made a matter of common knowledge, therefore, so that users of magnesite will be able to guard against trouble of this kind, especially during the initial heating period.—R. H. Youngman in "Metallurgical and Chemical Engineering."

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

Panama-Pacific Brick House Furnished and Oper

One day early in the present month, the doors of the model fire-resistant residence that has been erected at the San Francisco Exposition by the brickmaking industry of America (aided by some tile men and by the labor organizations) will be opened to the public. Through the fortunate incident of a request coming to the directors, in which the idea of the house being occupied by a business woman, already having some interest in home building and home furnishing, a very excellent arrangement has been made, as will be seen by a perusal of the following letter from E. C. Kimbell, publicity manager for the Panama-Pacific Clay Products Association:

Much space has been donated by various trade journals, and numberless pamphlets, circulars and letters distributed in an effort to impress on the minds of the ones with money invested in the manufacture and sale of burned clay products, that the place for spreading this trade gospel is at our exhibit at San Francisco, and the time, now.

As to "our brick home," nothing more can be said as to its utility. To the casual observer it is an inaminate proposition, but to the ones whose donations of material, time and money have furnished to the brick interests as a whole, a complete exhibit *to the point of exhibiting,* it stands as a mute appeal to those who have not subscribed to its support, and a tribute to the progressive minds of the men responsible for it.

By and through the kindly interest and co-operation of Mr. J. R. Gwynn of San Francisco, who has had this brick home under his direct charge since the start, and Mr. Charles E. vanBarneveld, Chief Mines and Metallurgy, our home was furnished complete and occupied on July 1.

It is furnished free of expense to this association by Louise Brigham Home Arts Incorporated. Miss Brigham is the originator of the "Box Furniture" idea which has met with great favor by all classes. She has a large following in New York City, keeping an open house, maintaining a foreign exhibit, advertising extensively, and in addition to her practical exhibit of a "Home Complete" which is ours, has an additional exhibit in the Educational Palace.

We do not ask the ones who *have contributed,* to do more, but we want to add your name to the list and to show you that the Panama-Pacific Clay Products Association will not lose its identity after the close of the Exposition; on the contrary, a new field of publicity can be inaugurated which will embrace clay interests both large and small, and furnish to its supporters the maximum of publicity at the minimum of expense. This condition depends upon your immediate support.

Our "brick home" is controlled by this association. None of our rights of occupancy are waived. With the publicity given by Miss Brigham and the loyal support of which we are assured by our San Francisco co-workers, it stands to reason that our representative *when he is on the ground,* will be able to glean from the mass of visitors, *some* wheat from the chaff, that will prove to the supporters (both present and prospective) of the idea of national brick publicity that, notwithstanding the present financial condition of the country, there are brighter days in store for the manufacturer and dealer alike, and a brisk rubbing *now* will add to the lustre of the days of prosperity which will come to us as the natural sequence of co-operation.

Clayworkers who are planning to go to the San Francisco Exposition will do well to make it a point to visit this house, and see what it is doing to advertise fire-resistant construction—particularly brick and hollow-tile.

Wants Information as to Clay Selection.

C. R. Goodman, a civil engineer and surveyor, at Orange, Texas, writes a letter that is interesting, from the point of the questions asked and the answers that were made to them. Mr. Goodman wrote:

I would appreciate it if you would send me any information relative to the selection of proper clay for the manufacture of drain-tile, fire-brick, common-brick and face-brick. Also advise me, if you can, where I may secure tests on samples of clay—commercial tests that would prove the fitness of the clay for the manufacture of any or all of the products mentioned above.

The above letter was shown to one of "Brick and Clay Record's" most valued readers—a man who has had a wide and varied experience with the clays of this country. He asked the privilege of writing a reply, which is given below:

To properly answer the questions of your correspondent would require a small volume, but I will say, regarding selection of clay for common-brick or drain-tile manufacture—this clay should be plastic, although not free from sand, and a sample test of this can be made by molding a piece of the material into a round bar about 3 inches by ¾ inch diameter. This bar should stand bending to some extent without breaking. If it breaks it will show that the clay is too "short." On the other hand, if the clay is very tenacious it may be too tough to work on the machine and a risky drying proposition—the more sandy clays being easier to dry without cracking.

Face-brick—the same clay which will make a good common brick will very often produce creditable face-brick, the difference being due to the better preparation and improved methods of handling and treatment throughout the various stages of manufacture. Face-brick are usually burned in down-draft kilns, in order to secure better color effects, etc.

Fire-brick—clay fire-brick, of course, are made from fire-clay, i. e., a clay which will withstand a high temperature without softening. There are so many different grades of both these clays and so many kinds of fire-brick made from them that one cannot do justice to this subject in a letter.

If your correspondent contemplates embarking in the clayworking business the attached extract from an article by Mr. W. D. Richardson should be of particular interest to him. The article in question appeared in "Brick and Clay Record" in November, 1906.

The extract from Mr. Richardson's article follows:

The more experience one has with clays the less he relies upon the uniformity and continuity of the deposit, and the more he insists upon thorough exploitation and testing before making them the basis of a large investment. To the inexperienced, however, it seems like a waste of money to spend a few hundred dollars on this preliminary investigation. Clays and clayworking, especially brickmaking, seems so simple to one taking it up for investment, and the margin of profit figures out to be so large, that the beginner does not hesitate to go ahead and build a plant without what seems to him unnecessary delay and expense. He may go to the trouble of sending some of the clay to a manufacturer of machinery, not so much to convince himself of the suitability of the clay for his purpose, as to get some fine samples of brick to exhibit to those whom he is persuading to invest in his enterprise. To one, however, who like the writer, has seen so many disastrous failures from the building of plants where the clay proved unsuitable for the product desired, or, in a few years, either the deposit exhibited such a change in character as to become unsuitable, or became exhausted entirely, the importance of thorough exploitation and testing of all clay deposits before investing in a plant for their manufacture, cannot be overestimated.

"Brick and Clay Record" has but a few words to add to the above. They are that many of the state universities have splendid laboratories, where tests of clay are made at very low rates. In almost every case where tests made in these laboratories fail to prove conclusively that the clay is right for the purpose proposed, a great deal of money will be saved by accepting the verdict. If, on the other hand, the tests are favorable, it would be well to have a commercial test made by some clayworker who is willing to put your material through his kilns. That gives you a double check on the material, and is worth all it costs.

Freight Tariffs and Troubles

Devoted to Information and Advice on Freight Tariffs and on Cases Before the Interstate Commerce Commission

IN the rougher forms of clay products—brick, tile and hollow block—the cost of freight transportation is a large item of expense. A preferential freight rate opens or closes a market, despite every cost-saving process that may enter into the manufacture of the ware. "Brick and Clay Record" gives its readers a valuable service, through this department, in publishing in convenient form, the changes in freight rates on brick (common, pressed, enameled and fire), hollow tile and the like. These freight changes should be closely followed, as any one of them may affect your market or your selling price. In addition to this, Irwin W. Preetorius, Freight Traffic Counselor for this magazine, will check freight expense bills without making any charge for the service, and will point out overcharges, wrong routings and other points that have been adding expense to your carrying charges in the past. He will also give advice as to the proper way of filing complaints before the Interstate Commerce Commission.

THE INTERSTATE COMMERCE COMMISSION has announced a series of hearings to be held at Chicago during the present month to consider proposed general advances in rates and changes in rules that would increase the transportation charges to the shipper in Western Classification territory which, roughly speaking, comprises that part of the country lying west of the Illinois-Indiana state line and the Mississippi River. These advances, now under suspension by the commission, form the second division of the General Western Rate Advance Case, protracted hearings in which were held before Interstate Commerce Commissioner W. M. Daniels during March, April and May of this year.

Over one hundred commodities or classes of commodities are involved in the new hearings. Among them are a number that have interest for clay products manufactures: during the week beginning July 19, Special Examiner Edward W. Hines will consider testimony for and against proposed increases in the rates on flue-lining. During the week beginning July 26, consideration will be given to evidence relating to rates on brick, hollow building tile, hollow ware, plaster-board and sewer-pipe.

Rates on brick, from Attica, Ind., to Harvey, Ill., have not been found unreasonable, according to the opinion recently handed down by the Interstate Commerce Commission in the case of F. W. Lucke & Co., of Chicago, against the Wabash Ry. Co. et al. In the same case a claim for overcharge on account of erroneous weights was made and it was ordered that the railroad investigate the matter and if the overcharges claimed were found to be warranted, reparation should be made with interest at six per cent.

The proposed cancellation of through routes and joint rates in connection with the Chicago Warehouse and Terminal Company and the Merchants Lighterage Co. are found not to be justified by the commission in the Chicago switching charge case. Suspended schedules have been ordered cancelled and the present arrangements with the tunnel and lighterage companies will be continued.

REPARATIONS

Coffeyville Shale Products Company vs. the Atchison, Topeka & Santa Fe Railway Company, $12.76.

Ludowici-Celadon Company vs. Michigan Central R. R. Co., et al., $37.63.

Universal Clay Company vs. the Atchison, Topeka & Santa Fe R. R. Co., $26.65.

National Fire Proofing Company vs. Hocking Valley R. R. Co. et al., $17.50.

Harbison-Walker Refractories Company vs. Pennsylvania R. R. Co., $16.70.

Marshall & Spencer Company vs. Georgia Southern & Florida Ry. Co. et al., $28.42.

National Fire Proofing Company vs. Pennsylvania R. R. Co., $22.12.

Zumbrota Clay Manufacturing Company vs. Northern Pacific Railway Company, $6.25.

W. S. Dickey Clay Manufacturing Company vs. St. Louis & San Francisco Railway Company et al., $1,254.64.

National Fire Proofing Company vs. Chicago, Rock Island & Pacific R. R. Co., $19.71.

Farmers Manufacturing Company vs. Atlantic Coast Line R. R. Co., $78.84.

HEARINGS

A hearing is to be held at Kansas City, Mo., on July 7, before Examiner Dow in case No. 7980 of the Standard Vitrified Brick Company against the Missouri Pacific Railroad Company et al.

Another hearing is set for July 8 and will be heard at Des Moines, Ia., before Examiner Wood in the case of the National Clay Works vs. Minneapolis & St. Louis Ry. Co.

The case of the Reliance Brick & Tile Company against the Illinois Central Railroad Company et al., will also be heard at Des Moines, Ia., on July 12.

SUSPENSIONS

The commission has issued investigation and suspension order No. 660 prohibiting the carriers from putting into effect advanced rates on fire-brick from Malvern and Perla, Ark., to Shreveport, the advances to the latter point being about one hundred per cent. The advanced rates have been suspended until October 19, prior to which time it is probable that the commission will hold a hearing at which the carriers must justify the proposed advances.

Changes in Freight Rates

Since our last issue, the following freight tariffs affecting clay products, have become effective:

FROM EASTERN POINTS

From Allentown, Pa., all kinds of brick (except enameled) and clay products, to Scranton, Pa., $1.26 per net ton.

From Corning, N. Y., flat, flooring or roofing brick, to Middletown and New Berlin, N. Y., $1.84 per net ton.

From Corning, N. Y., paving brick, flat, flooring or roofing brick, to Kenwood, N. Y., $1.58 per net ton; to New Berlin and Liberty, N. Y., $1.84 per net ton.

From Elmira and Horseheads, N. Y., all kinds of brick (except enameled) and clay products, to Albany, N. Y., $1.58 per net ton; to Scranton, Pa., $1.32 per net ton.

From Gettysburg, Pa., brick, to Coaldale and Lansford, Pa., $1.80 per net ton.

From Gettysburg, Pa., brick (except enameled) to Norfolk, Va., $2.56 per net ton.

From Kutztown, Pa., brick, to Fleetwood, Pa., 40c per net ton.

From Mt. Jewett, Freeman and Hutchins, Pa., fire clay, to Watertown, Ont., $2.05 per net ton.

From Spring Garden Junction, Pa., all kinds of brick, (except enameled) and clay products, to Albany, N. Y., $2.10 per net ton; to Plymouth and Scranton, Pa., $1.32 per net ton.

From Whippany, N. J., brick, to Valhalla, N. Y., $2.24 per net ton.

From Wilkes-Barre and South Wilkes-Barre, Pa., all kinds of brick (except enameled) and clay products, to Binghamton, N. Y., $1.58 per net ton; to Carbondale, Pa., $1.05 per net ton.

From Winslow Junction, N. J., brick, to Wissahicken, Pa., 95c per net ton.

From Youngsville, Pa., paving brick, to Fredonia, N. Y., 80c per net ton.

FROM MIDDLE WEST POINTS

From Chicago, Ill., and Burlington, Ia., brick and other clay products, to Breckenridge and Moorhead, Minn., and Wahpeton and Fargo, N. D., 19c per cwt.; to Edgely and Oakes, N. D., 20c per cwt.

From Chicago, Ill., and rate points, brick and articles taking the same rates, to Oakes, N. D., and rate points, 20c per cwt.

From Chicago, Ill., brick and clay products, to Columbia, Mo., 9c per cwt.

From Chicago Heights and Joliet, Ill., and Hammond, Ind., brick and articles taking the same rates, to Ottawa, Ill., 70c per net ton.

From Coal City, Ill., brick and articles taking the same rates, to Ottawa, Ill., 53c per net ton.

From Danville, Ill., brick, to Marshall, Minn., 16.2c per cwt.

From Hobart and Porter, Ind., brick and articles taking the same rates to Ottawa, Ill., $1.05 per net ton.

From Milwaukee, Wis., brick and articles taking the same rates, to Appleton, Beloit, Chilton, Clinton Junction, Elkhart Lake, Fond du Lac, Hayton, Janesville, Kiel, Menasha, Milton Junction, Neenah, New Holstein and Oshkosh, Wis., 4.5c per cwt.; to Hilbert Junction and Watertown, Wis., 4c per cwt.; to Rison, Wis., 5c per cwt.; to Plymouth, Wis., 3.4c per cwt.

From Oshkosh and Eau Claire, Wis., enameled brick in carload lots and also in mixed carloads with other brick, to Dubuque, Ia., Peoria, Ill., and St. Louis, Mo., 14c cwt.; to Cairo, Ill., 14½c per cwt.

From Peoria, Ill., brick and other clay products, to Boston, Mass., and Montreal, Que., 26.3c per cwt.; to New York, N. Y., 24.3c per cwt.; to Philadelphia, Pa., 22.3c per cwt.; to Baltimore, Md., 21.3c per cwt.; to Cumberland, Md., 19.4c per cwt.; to Albany, N. Y., 23.3c per cwt.; to Utica, N. Y., 22.1c per cwt.; to Syracuse, N. Y., 20.4c per cwt.; to Rochester, N. Y., 18.5c per cwt., and to Quebec, Que., 31.3c per cwt.

From St. Paul, Minn., brick (except glazed, enameled or bath) and other clay products, to Sioux City, Ia., Yankton, S. D., and Fairmont, N. D., 8c per cwt.; to Thief River Falls, Minn., 9.3c per cwt.; to Windena, Minn., 6.2c per cwt.; to Wahpeton, N. D., 9c per cwt.; to Wingate, Minn., 5.5c per cwt., and to Grand Forks, N. D., 11c per cwt.

FROM WESTERN POINTS

From Anaconda, Mont., brick and clay products, to Gold Creek, Mont., 5c per cwt.; to Bonner, Mont., 8c per cwt.

From Atchison, Kansas City, Kan-Mo., Leavenworth, Kan., and St. Joseph, Mo., and rate points, enameled brick in carloads or in mixed carloads with other brick, to Des Moines and Ottumwa, Ia., 12½c per cwt.

From Boone, Des Moines and Redfield, Ia., brick and articles taking the same rates, to Omaha and South Omaha, Neb., 6c per cwt.

From Boone, Des Moines and Redfield, Ia., drain tile, to Omaha and South Omaha, Neb., 7c per cwt.

From Butte, Mont., common-brick, to Belgrade and Bozeman, Mont., 5½c per cwt.

From Butte, Mont., brick and clay products, to Three Forks, Mont., 6c per cwt.

From Des Moines, Ia., brick, to Clarks' Grove, Ellendale and Hope, Minn., 8c per cwt.; to Reading, Minn., 9c per cwt.; to Lismore and Kenneth, Minn., 11c per cwt.

From Des Moines, Ia., brick (except bath or enameled) and other clay products, to Oakes, N. D. 17c per cwt.

From Fort Dodge, Ia., brick and other clay products, to Fargo, N. D., and Moorhead, Minn., 16c per cwt.

From Lincoln, Neb., brick (except bath and enameled) and other clay products, to Fairbury, Neb., 3½c per cwt.; to Havelock, Neb., 2c per cwt.; to Beatrice, Omaha, South Bend and South Omaha, Neb., 3c per cwt.; to Hebron, Neb., 4½c per net ton; to Nelson, Neb., 5c per cwt., and to Fairbury, Neb., 4c per cwt.

From Lincoln, Neb., brick (except bath or enameled) and articles taking the same rates, to Browning, Humansville, Liberal and Rich Hill, Mo., and Cherryvale, Columbus, Fredonia, Neodesha, Pittsburg and Weir, Kan., 9c per cwt.

From Mason City and Rockford, Ia., brick and articles taking the same rates, to Duluth, Minn., Superior and Ashland, Wis., 9c per cwt.; to Gilbert and Virginia, Minn., 13.1c per cwt.; to Aurora, Biwabik, McKinley, Pettit, Sparta and Eveleth, Minn., 13c per cwt.; to Chisholm and Hibbing, Minn., 13.2c per cwt.

From Mason City, Ia., brick and other clay products, to Breckenridge and Moorhead, Minn., and Fargo, N. D., 12c per cwt.; to Franklin, Minn., 15c per cwt.; to Nortonville, N. D., 15½c per cwt.; to Millarton, N. D., 16c per cwt.; to Sydney, N. D., and Homer, Minn., 16½c per cwt.; to Jamestown, N. D., 17c per cwt.

From Mason City and Rockford, Ia., brick to Clarks Grove, Ellendale and Hope, Minn., 5c per cwt.; to Reading, Minn., 9c per cwt.; to Lismore and Kenneth, Minn., 10c per cwt.

From Pueblo, Colo., brick (except fire, bath and enameled) to Scott City, Kan., 14c per cwt.; to Great Bend, Kan., 14½c per cwt.; to Hutchinson, Nickerson and Sterling, Kan., 15c per cwt.

From Pueblo, Colo., fire-brick and fire-clay, to Scott City, Kan., 14¾c per cwt.; to Great Bend, Kan., 15¼c per cwt.; to Hutchinson, Nickerson and Sterling, Kan., 15¾c per cwt.

From Rapid City, S. D., enameled brick, to Chicago and Peoria, Ill., and Duluth, Minn., 36½c per cwt.; to St. Paul and Winona, Minn., 35c per cwt.; to Savanna, Ill., 34½c per cwt.

From Sioux City, Ia., brick (except glazed and enameled) and articles taking the same rates, to Huron and Watertown, S. D., 10c per cwt.; to Aberdeen, S. D., 11c per cwt.; to Yankton, and Hanley Falls (when destined to stations on the M. & St. L.), 6c per cwt.; and to Granite Falls, Minn., 6.5c per cwt.

From St. Louis, Mo., group, fire-brick, to Abbeville, La., 28.21c per cwt.

FROM SOUTHERN POINTS

From Columbia, S. C., common-brick, to Clyo, Berrys, Stilwell, Birds Spur, Motweiler's Spur, Rincon, Simmons, Hinley's Spur, Exley and Meinhard, Ga., $2.50 per thousand brick.

From Malvern, Ark., fire-brick, to Ruston, La., 12c per cwt.; to Winnfield, La., 17c per cwt.; to Cedar Grove, Gas Center and Shreveport, Pa., 15c per cwt.

From Perla, Ark., fire-brick, to Ruston and Winnfield, La., 14c per cwt.

From Augusta, Ga., paving or vitrified brick, to Ridgeland, S. C., 3½c per cwt.; to Walterboro, S. C., 3¾c per cwt.

From Blue Brick Siding, S. C., common brick, to Albemarle, Lexington, Norwood and Whitney, N. C., $2.60 per M.; to Dunn and Lumberton, N. C., $2.00 per M.; to Fayetteville, N. C., $1.85 per M.; to Goldsboro, N. C., $2.25 per M.; to Greenville, N. C., $2.95 per M., and to Winston-Salem, N. C., $2.75 per M.

With the Potteries

Present indications point to the fact that the summer "loaf" in the potteries west of the Allegheny mountains will be from ten days to two weeks' duration. While the general volume of business now being received by the pottery manufacturers is not large, the manufacturers hold that because of the shortage of stocks in the hands of the jobbers and retailers, and also because the importers have increased their selling lists to from fifteen to twenty per cent, the demand for American pottery is bound to be unusually brisk this summer and fall. During the shut-down which will start July 3, the majority of the plants will undergo a complete overhauling. New machinery is to take the place of old, kilns will be repaired and buildings generally renovated. It is also claimed that when the new season starts a number of new shapes will be placed on the market in the dinnerware plants, and that the molds for these have already been delivered.

The action of importers of pottery and china in withdrawing all selling price lists, and so notifying American buyers, means that the demand for American pottery of all kinds this season will be about the heaviest the manufacturers have ever experienced. It is asserted by some that the importers will be compelled to increase their selling lists of from fifteen to twenty per cent, and in turn the retailers will be compelled to also advance their selling prices. For the past six weeks the pottery trade has been rather dull and characterized as "spotty." The demand for imported ware has also been slow. It is pointed out that little if any ware is coming from German and Austrian potteries, and that the foreign factories are running with greatly decreased forces, more so than at any time since the European war started.

That American pottery manufacturers will not take advantage of the present situation in the import field and increase their selling lists is generally admitted by the manufacturers. It is claimed that the American potter will maintain all present price lists at least for the current calendar year, and that it is also possible to secure very prompt shipments on all orders.

A deal has just been closed whereby the plant of the Ohio Pottery Company at Zanesville, Ohio, has been taken over by Charles D. Fraunfelter of Zanesville, and Hugh R. Hamilton, of Youngstown, Ohio. This new concern will start the manufacturing of a special line of art pottery and white-lined cooking ware. This plant has a capacity of five kilns, having been inactive for some time past.

Thomas Davison, formerly of the Owen China Company, has been appointed assistant manager of the Paden City Pottery, Paden City, W. Va. Mr. Davison has had considerable experience as a potter, being employed in the Owen China Company's plant for seven years, until about three years ago, when he was forced to give up his position on account of his health.

The Athens (Tex.) Pottery Company has completed its new plant, with the exception of a few kilns, and is shipping several cars of pottery and hollow building tile daily. This plant is now the largest pottery in the South, and when running to full capacity will have on its pay roll over one hundred employes.

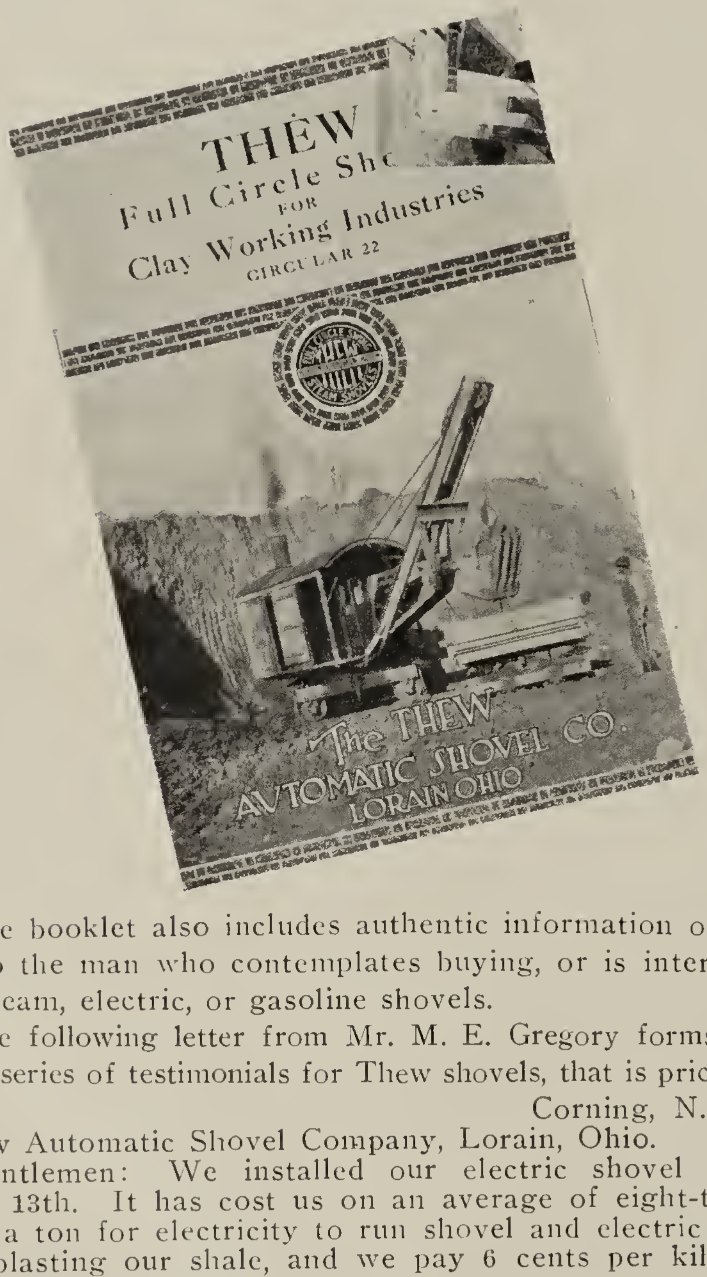
The Wayne China Company, of Wooster, Ohio, has been incorporated with a capital stock of $200,000. Arthur F. Calerdine, Charles U. Harris, Louis P. Mauger, Edward J. Quigley and A. Z. Wheeler are interested.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

Thew Shovel Information

In their new catalog, The Thew Automatic Shovel Company, of Lorain, Ohio, have a booklet that is not filled from cover to cover with uninteresting description of detail but conversely, it contains live news pertaining to shovel operating costs, compiled from data obtained from fifty clay plants operating Thews; together with illustrations showing the shovel in actual use.



THEW
Full Circle Sh
FOR
Clay Working Industries
CIRCULAR 22

The THEW
AUTOMATIC SHOVEL CO.
LORAIN OHIO

The booklet also includes authentic information of value to the man who contemplates buying, or is interested in, steam, electric, or gasoline shovels.

The following letter from Mr. M. E. Gregory forms part of a series of testimonials for Thew shovels, that is priceless:

Corning, N. Y.

Thew Automatic Shovel Company, Lorain, Ohio.

Gentlemen: We installed our electric shovel about May 13th. It has cost us on an average of eight-tenths cent a ton for electricity to run shovel and electric drills for blasting our shale, and we pay 6 cents per kilowatt hour for our electricity.

Previously we used 13 men in our shale quarry to load sufficient shale for our plant. We now use five men and are accumulating considerable surplus ahead and have not been shut down at any time on account of stormy weather. We have saved over 39c per thousand by the use of the electric shovel in the cost of our paving block. We believe moreover, that we have been able to mix our shale better and load our cars fuller than we ever did when we were quarrying the shale by hand.

To say that we are pleased with our purchase is putting it mildly, as we believe it one of the best business propositions we have ever taken up and would not think of going back to the old methods if the shovel cost twice the money. We remain, yours truly,

Brick, Terra Cotta & Tile Company,
M. E. Gregory, Prop.

Copy of booklet will be sent on request.

"Home Electrical"

The General Electric Company, Schenectady, N. Y., is perhaps more generally known to our readers as manufacturers of electrical equipment for plants, but the following description of their exhibit at the Panama-Pacific Exposition will doubtless be none the less interesting because of that fact. The manufacturer of clay-products would have just as much use, in his own home, for the devices employed in the "Home Electrical," as anybody else.

Theirs is a novel exhibit, one that has attracted unusual attention and has been crowded with visitors since it was opened. It is called the "Home Electrical," and is located in the Palace of Manufacturers. It is a full-sized model home in which electricity is made to perform the domestic tasks and labors. Electricity cooks, washes, launders, sweeps, dusts and fulfills countless other household duties; and it also heats, lights and cools the house.

The home is in no sense an exhibition to demonstrate the radical things that may be done with electricity in a house, but it is in every way a practical modern home, and every one of the electrical devices shown is entirely suitable for the average family. The exhibit is completely operative and is intended to be broadly educational.

It is impossible to describe in detail the various ingenious, practical devices; the exhibit must be seen to be appreciated.

In every room there is to be found one or more conveniences that range from an electric riveter, drill, and grindstone in the workshop of the man-of-the-house, to the burglar switch located in the bedroom, which when needed lights every lamp in the house.

In the dining room are electric room heaters, electric fans, a radiant toaster, electric coffee pot, a tea samovar, a disc stove for general cooking, a uni set, a chafing dish, an electric grill for preparing eggs, broiling meats,

"Home Electrical" of the General Electric Company Exhibit at the Panama-Pacific International Exposition toasting, etc. If desired a very substantial meal can be prepared on the dining room table.

The same ingenuity is displayed in the butler's pantry, nursery, bathroom, sewing room, laundry, living rooms and porches, bedroom, kitchen, pump house, garage and dairy.

The "Home Electrical" demonstrates the extent to which electricity is readily adaptable for all kinds of domestic service where light, heat and power are required. These electrical devices are simple to use and comparatively moderate in cost. Some of them may be operated as reasonably as an electric iron. It is possible to install many of them without extra operative costs by taking out old carbon incandescent lamps and replacing them with modern Mazda lamps, which save fully two-thirds of the current; and this can be used to run fans, cooking devices, vacuum cleaners, etc., without increasing the monthly lighting bill.

Heraeus Le Chatelier Pyrometers

Charles Engelhard, New York City, has three separate installations of his Heraeus LaChatelier pyrometers at the Panama-Pacific Exposition, used in connection with Government exhibits.

One installation is used in the Metallurgy Department of the Bureau of Mines, and consists of indicating and recording instruments of the most improved types, together with several thermo-couples, mounted for the special condition under which they are used, these being in testing furnaces or roasting furnaces, and reverberatory furnaces.

All of these Heraeus thermo-couples are provided with water-cooled terminals.

Another outfit is used as a standard for the comparison of other makes of thermo-couples, not only as an actual check on those thermo-couples, but as a demonstration to show how such tests should be made.

The third installation consists of a combination pyrometer and resistance thermometer portable boiler testing outfit.

The thermo-couples are used in the flues, one in each of the two boilers.

The resistance thermometers are used in the stacks, superheated steam, condensing water and feed water of two boilers, all connected to a single portable indicating set, which is graduated with three scales—one from 32-3000° F. for the pyrometers, the second from 50-250° F. for feed water and condensing water, and the third from 250-1000° F. for superheated steam and stack temperatures.

This installation has been on the market but a short time, but during that time has been adopted by one of the large packing houses in three of their boiler plants, by one of the very largest boiler manufacturing concerns in the United States and by one of the largest railroad companies in the East.

There is little question that it will receive considerable attention at the Exposition, filling, as it does, a long-felt want for actual temperature control of all important points in the boiler plant, and permitting, as it does, a battery of any number of boilers to be connected to a central indicating or recording station, where all of these temperatures can be measured by simply pressing a button.

The Ohio Kiln Company, Vigo, Ohio, is erecting Improved Hook Patent up-and-down-draft kilns at the McArthur (Ohio) Brick Company's plant; also at the plant of the Angerer Clay Product Company, Scofield, Mich.

The Baldwin Exhibit

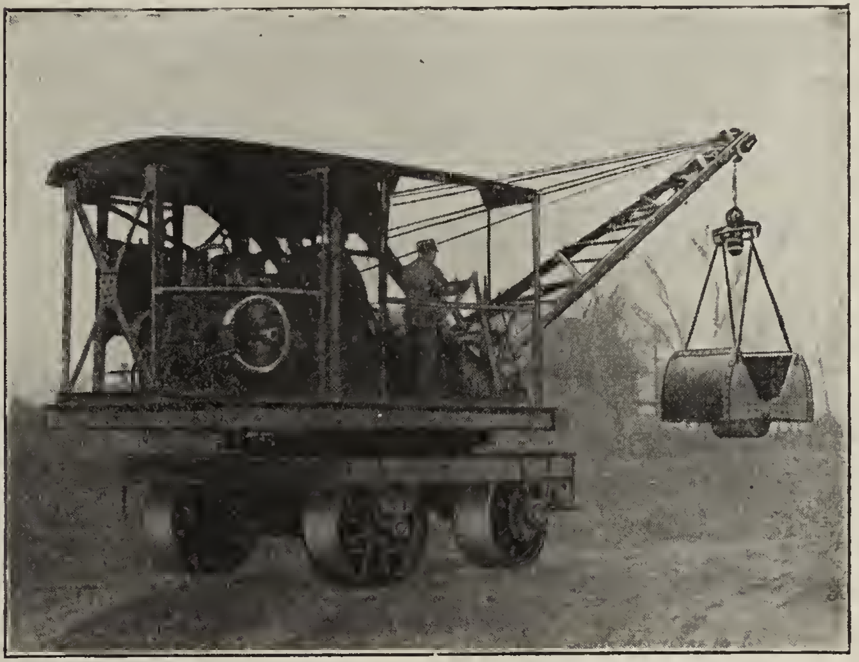
This is an exhibit that shows the complete range in size and power of the Baldwin line, from the smaller types of industrial locomotives to the heavy Mikado type, equipped with the Street locomotive stoker.

The largest locomotive on exhibition is eighty-four feet and ten inches in length, and it is interesting to note that this is just nine times the over-all length of the smallest Baldwin gasoline locomotive, and almost eighty-one times as heavy. The Baldwin Locomotive Works, Philadelphia, have a catalog describing the exhibit more fully than is possible here.

Traction-Wheel Locomotive Crane

A small traction-wheel locomotive crane, with clamshell bucket, for loading motor trucks and wagons, is now being built by the Davenport Locomotive Works, Davenport, Iowa. It is driven by gasoline, kerosene, steam or electricity.

The weight is so light that it will travel on standard wheels over ordinary good hard roads without the use of plank, and for work over very soft ground caterpillar wheels are provided.



Besides being provided with the ordinary rotating, propelling and hoisting mechanism usually found on cranes, it is equipped with a device by which the operator controls the steering mechanism and travel brakes from the operator's platform.

Although primarily designed for use in unloading gondola cars on team tracks and loading trucks in coal and building material yards they are found to be very useful to contractors unloading material for country roads, as they travel from place to place under their own power and can be used on the average country switch track.

They are also used about clayworking plants and various other plants which require a locomotive crane and do not have track facilities for a railroad crane. An electric lift magnet is used for handling scrap iron.

The Walter A. Zelnicker Supply Company, St. Louis, specialize in rails of all sizes, both old and relaying; also in all kinds of machinery and equipment suitable for a brick plant. They are manufacturers of the well-known Zelnicker specialties, including car movers, heavy sweeping brooms, hickory handles, car seals, sand drying stoves, wheel presses, babbitt metal, etc. They have gained quite a reputation on these articles, all of which are guaranteed and sold on approval. They issue regularly a Bargain Bulletin; the July issue will soon be ready and may be had for the asking.

Ricketson's Mortar Colors

Pure, brilliant in tone, economical in use, absolutely reliable and a permanent guarantee against fading and washing. Why not insist on having them?

Red, Brown, Buff, Purple and Black

Ricketson Mineral Paint Works, Milwaukee, Wis.

Anchor Brand Colors

For Mortar Cement and Brick

Brown, Black, Red and Buff · Strongest and most durable

Manufactured by

C. K. WILLIAMS & CO., EASTON, PA., U.S.A.

Correspondence solicited

H. M. DEAVITT, *Ceramic Chemist*

209 South LaSalle Street, Chicago

Best equipped consulting laboratory in the West for the analysis of clays and clay products.

Equipped for research work in all branches of the clay industry, including fluxes, glazes, burning, etc.

Expert examination of deposits and plants a specialty.

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FOR HARD SERVICE

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Clearfield Machine Shops, Clearfield, Pa.

Our business is diagnosing and remedying

TROUBLES

of manufacturing for the Clayworker. If you are experiencing loss in any department, mechanical, drying or burning, consult

H. & B. COPPING, Kankakee, Illinois

We personally do the work.

DRYER CARS

ALL STYLES—ALL SIZES

H. W. GERLOCK, Huntingdon, Penna.

Simple in Construction
Efficient in Operation

Complete description in the

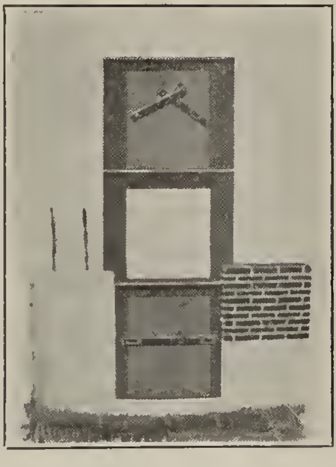
ZOOK SILO FRONT

pamphlet, a copy of which is yours for the asking.

Manufacturers' rights sold, or I will fill your orders direct.

G. W. ZOOK

BUFFALO KANSAS



The Semi-Monthly Trade Review

COMPARISONS with the volume and value of clay products made and sold in this country in the half year just closed, with the half year ending June 30, 1914, as shown by the amount of building and general construction specifications turned into a national "advance building reports" company, are enlightening and encouraging. There is some recession in the Middle West, perhaps, reflecting the Chicago carpenters' strike and more recent labor troubles. Compared with money expended for building construction in the Pacific Coast states, there is a retraction in the proportion of common-brick, but a gain in the use of hollow block and face-brick is shown, probably reflecting extensive exposition construction work.

In the South the returns show a steady, though moderate advance in the use of clay products in building, but in the East practically no improvement is noted, yet there is no noticeable recession. The strongest factor there is face-brick.

Peculiar conditions have had much to do with this general situation. Commercial Manhattan has been considerably over constructed, but residential New York, anticipating the construction of its $175,000,000 subway system that will put all its environs within a twenty-minute distance of the heart of the city, is making strenuous efforts to provide homes for those who are now crowded into quarters made almost unlivable by manufacturing and commercial expansion. Practically every apartment house is being faced with face-brick and filled in with hollow block and common-brick.

An important manufacturer of Hudson river common-brick in speaking of the eastern situation said:

"We've got a labor strike on at Haverstraw. Up-river plants have been crowding their machines and when we announced that we intended increasing our machine capacity 2,000 to 3,000 a day the men decided to quit. The issue is one that might just as well be met now as any other time and so we manufacturers have decided to see the fight to a finish. It is a question whether we or the men we hire are going to run our plants.

"Furthermore we have got to meet the competition from the plants at Newburgh and Kingston. If they are using their biggest capacity, there is no reason why we should not. Personally, I do not think this strike will be of long duration.

"New York, in the meantime, is getting all the brick it wants from the up-river plants. Prices are not exceptionally attractive in the market now, running as they do between $5.75 and $6.25 a thousand, wholesale, so we are in almost as good a position as those who are shipping brick at profits so small they can hardly be seen."

Some interesting estimates have come to the editorial offices of "Brick and Clay Record" regarding the rate of clay products manufactured in some of the leading states for the half year just closed. These show that most plants in the country are operating at approximately eighty per cent of capacity. The estimates were obtained only for the states of Illinois, New York, Ohio, New Jersey, California and Pennsylvania and show indicated production for the year to be as follows:

Common-brick: Illinois, 900,000,000; New York, 750,000,000; Ohio, 325,000,000; New Jersey, 375,000,000; California, 230,000,000 and Pennsylvania, 680,000,000.

Face-brick: Illinois, 25,000,000; New York 6,000,000; Ohio, 155,000,000; New Jersey 38,000,000; California 38,000,000 and Pennsylvania, 200,000,000.

Comparing these estimates with the volume of building construction now going ahead, it is evident that clay products manufacturers are bringing their outputs close to demand so that the average price of common-brick for the country next winter will be, based upon demand and supply, nearer $6.30 than $6.20 prevailing in 1913. In that year, according to an authority, there was a little over-production as far as common-brick was concerned.

These figures tend to show that clay products manufacturers, like producers of practically every other staple, are keeping supply close to demand in anticipation of what is now generally believed to be the dawn of an unprecedented era of prosperity. Recent happenings in the financial and commercial world show the way the wind is blowing. Among them was the very favorable government report regarding crops. Another was the continued easing of the money market in the late crises arising over the interchange of notes with Germany. A composite computation of commodity prices shows a change upward in the index number of $.003 which is interpreted as a reflection of a gradual return to better wholesale prices. There is hardly an item entering building construction that is not higher in price at the turn of the first half of the year than at the opening of 1915 and such being the case it is at least reasonable to suppose that the clay products industry is to enjoy its share of the improvement.

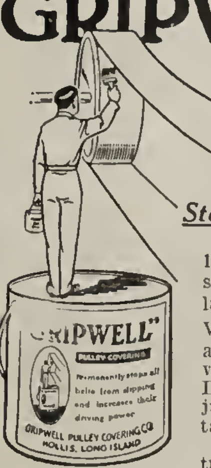
In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

ALABAMA

The Gulf Brick and Tile Company, Mobile, Ala., has been incorporated with a capital stock of $50,000, to establish a brick and tile plant.

All May shipping records at the plant of the Copeland-Inglis Shale Brick Company, near Birmingham, Ala., have been broken during the corresponding period in 1915, according to W. C. Woodall, of the 'Industrial Index,"


"GRIPWELL"
PULLEY COVERING
Permanently stops all belts from slipping and increases their driving power
GRIPWELL PULLEY COVERING CO
HOLLIS, LONG ISLAND

"GRIPWELL" Pulley Covering

Does ONE Thing and Does it WELL

Stops Belt Slipping

Belt slipping gives your engineer his young gray hairs and works untold havoc with your fuel bills, sending them skyhooting high regardless of tho work you get done. "Gripwell," as the picture shows, is applied to the pulley together with a specially prepared canvas. It gives the PULLEY a leathor-like surfaco. It gives the BELT a greater driving power — 30% greater—or enables you to run the belt ⅓ slacker under a full load. "Gripwell" does not injure the belts; it is actually a belt preservative. Its use means a saving in money, time, labor, oil, power and fuel.

Works equally well with all kinds of belting; canvas, leather or rubber. Doesn't your business judgment prompt you to take it up?

Write to-day for illustrated folder No. 14.

SOLD ON FIVE-YEAR GUARANTEE

"Gripwell" Pulley Covering is guaranteed for five years if applied according to directions. Not affected by acids, fumes, smoke, steam or climatic conditions. Price 75c per lb., f. o. b. New York.

"Gripwell" Pulley Covering Co.
601 Candler Bldg., New York City, N.Y.

A Fernholtz Clay and Shale Gatherer

will gather 80 to 100 yards in one day, from the surface of the field, with One Man and One Team.

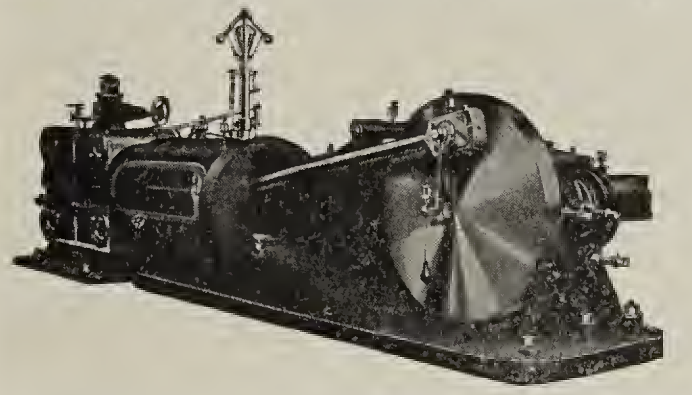
Surface Clay Plants

manufacturing brick and tile can cut their clay cost 50 per cent.

The Fernholtz Brick Machinery Co.
St. Louis, Mo.

Manufacturers of the famous Fernholtz Dry Press.

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870
BURLINGTON, IOWA

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices:
Steubenville, Ohio

Mills:
Newark, Ohio

BUCKEYE MEANS BEST

BEST MEANS BUCKEYE

All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

Columbus, Ga. Immense quantities of paving brick have been shipped from this plant to various Florida cities and counties.

Plans are now being made for the erection of a $25,000 brick plant at Tuscaloosa, Ala., the plant to have a daily capacity of 125,000 brick. E. J. Ostling, G. B. Wright, W. E. Bowers, and Mr. Davis, of Montgomery, are interested parties. It is also planned to manufacture sewer-pipe and drain tile, for which there is a growing demand in that territory.

A. G. Kahn, president of the Kahn Brick Company, Selma, Ala., has announced the reopening of his plant, which has been closed for the past seven months. Renewed activity in building operations is given as the cause for the resumption of brickmaking, many new buildings now being in the course of erection locally and in nearby cities. The plant has a daily capacity of 50,000 brick and employs sixty-five men.

CALIFORNIA

The bark "R. P. Rithet," which sailed from San Francisco last week, carried 200,000 brick for Honolulu and other points in the Hawaiian Islands.

The Refractory Magnesite Company has been incorporated at San Francisco with a capital stock of $24,000 by F. R. Turton, W. B. Stone and M. H. Van Battenberg.

The French ship "Rene Keroda," which arrived a couple of weeks ago, brought to San Francisco 511 tons of European fire-brick.

N. Clark & Son of San Francisco, brick and terra-cotta manufacturers, have completed the fitting up of a new show room at their San Francisco headquarters. The room is finished in Moorish designs with polychrome terra-cotta.

The Sonoma Magnesite Company, of San Francisco, Cal., has been authorized to sell 3,000 shares of its capital stock of a par value of $10 at a price to net the company $8 per share.

The City Council of Berkeley, Cal., has passed a new building ordinance calling for better fire prevention in the construction of private residences. The new ordinance will require a more extended use of brick and other fire-proof materials.

The McMullen Brick Company, Pomona, Cal., has started the manufacture of two million brick which it will stack in its yards to fill orders which the company is constantly securing for its product. William McMullen, manager of the plant, states that business prospects are encouraging. The company employs about twenty men.

Charles Hidecker, president of the Ione Fire Brick Company, of Ione and San Francisco, Cal., who recently returned from an extended visit to Panama and other points in Spanish America, reports that since the opening of the plant a couple of months ago, it has been working at capacity to fill accumulated and present orders.

While the use of paving-brick in San Francisco is not growing so fast as some would like to see it, owing largely to the heavy initial cost, there is nevertheless a disposition to extend the use of brick paving more or less. Early this month the Board of Public Works called for proposals on this type of pavement on Wisconsin Street and Pacific Avenue.

The California Paving Brick Company, of Oakland, Cal., has been authorized to issue 600,000 shares of its capital stock to the California Pottery Company in exchange for clay and shale deposits in Calaveras County, Cal., owned by the latter company, and for an option to purchase the plant of the

Pyrometer Insurance

You insure your plant against loss by fire. Why not insure your brick against loss through incorrect pyrometer readings. THE STUPAKOFF STANDARD LE CHATELIER PYROMETER. Write for a copy of "Pyrometer Facts."

The Stupakoff Laboratories
Pittsburgh, Pa.

STRENGTH UNIFORMITY DURABILITY
REG. U.S. PAT. OFF.
The Webb Wire Works
New Brunswick, N. J.

Send for Sample and Prices of WEBB "Red Label" Wire

Our steel is made especially for us in Sweden; we temper and draw the wire to withstand abrasion. Webb Wire is strong, durable and uniform, furnished in coils or looped lengths.

The loops are twisted, wrapped and soldered, another triangle of strength.

Davenport Locomotive Works,
Davenport, Iowa

PERFORATED METAL SCREENS

As required for BRICK MAKERS USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.

New York Office
Room 1028 Cortlandt Building

California Pressed Brick Company in Niles Canyon, near Niles, Cal., together with fifty-four acres of clay deposits in that vicinity.

A review of the sewer construction work done in the nine years since the great fire of April, 1906, shows an expenditure of $6,150,000. This includes the laying of a total length of thirty-five miles of masonry sewers and a total length of eighteen miles of pipe sewers. The system has been divided into two main drainage districts separated by the Twin Peaks ridge. There are five main outfall sewers leading into San Francisco Bay. Provision has been made for a rainfall of five inches in twenty-four hours and for seventy gallons of water per resident in twenty-four hours. Separate systems are provided for domestic purposes and for storm water in the level districts. Two sewage pumping stations are included in the system.

George O. Darrow, of Mission San Jose, Cal., who is preparing to erect a home at that place, has unearthed the remains of the brick and tile home of General Vallejo, the best known of the Mexican governors of California, who administered affairs there a century ago. Old residents say that the tile roof of the old Vallejo hacienda fell in about sixty years ago, but a large number of the tiles are still as good as ever and will be used by Mr. Darrow in his new residence. The roofing tiles are of various shapes and sizes, some wide and long, others narrow and short. An old resident of Spanish-Mexican descent says that the varying sizes are due to the varying sizes of the moulds, which were nothing else than the thighs of the Indian women and girls who made them under the direction of the priests of Mission San Jose. The plan was to thoroughly knead the adobe mud and then shape it over the thigh before laying it in the sun to dry before burning.

COLORADO

Frank C. Ervin, of the Denver (Colo.) Pressed Brick Company, states that his plant is working nights in order to keep up with the orders, and that business has not been as good in years.

Fred Lesser, manager of the Boulder Pressed Brick Company, Boulder, Colo., reports local business fully twenty-five per cent better than in recent years and outside orders from twenty-five to thirty per cent better. The company is now filling an order for 200,000 brick for the new Greeley (Colo.) school house, a church and two dwellings, and will soon begin to furnish 150,000 brick to Fort Collins contractors for business and new school buildings. The outlook for a busy season was never brighter, according to Mr. Lesser. The plant employes about twenty-two men.

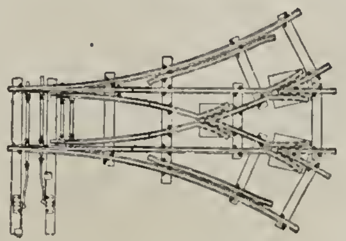
CONNECTICUT

The plant of the New England Brick Company at Unionville, Conn., which has been closed for nearly a year, has been reopened by M. B. Cleveland. A small force is at work making ready for the actual work of brick manufacturing and, it is expected, that thirty or more hands will be taken on.

Berlin, Conn., brickmakers are finding considerable difficulty in securing efficient help. All of the manufacturers are rushed with work and many are having difficulty in turning out their work on time because of the shortage of workmen. Several yards are working on orders for the Union Metallic Company, of Bridgeport, which is making extensive alterations in its factory, and has placed contracts for brick to be delivered at once with many plants in the state.

The Stiles & Hart Brick Company, North Haven, Conn.,

Dependable Track Equipment
The kind that gives *Service*



Frogs, Switches,
Switch Stands,
Portable Track,
all told about in
Catalog C

Cincinnati Frog & Switch Co.
Cincinnati, Ohio

Play Safe—
when in doubt - write
Cleveland Alloys Co.
Cleveland, Ohio
For Babbitt - It's "Nugget"
Best Brick Babbitt
Only 15 cents per pound

Five Exclusive Features Possessed by the
RUST SPECIAL CLAY FEEDER
They explain why it surpasses all others in economy and efficiency.
Marion Machine, Fdry. & Supply Co.
Box 395, Marion, Ind.
Catalog on Request

Link-Belt Silent Chain
The modern method of transmitting power
from prime mover to machine, or from line shaft to counter shaft. It shows the highest sustained efficiency of all mediums for the transmission of power (98.2% on actual test). It is as flexible as a belt—as positive as a gear and is more efficient than either.
Write for Silent Chain Data Book No. 125 or send for a Link-Belt Service Man
LINK-BELT COMPANY
Philadelphia Chicago
Indianapolis

"Clinton" Brick and Mortar Colors

Unusually strong in pigment. Positively warranted not to wash out, "streak," or fade. Recognized everywhere as the standard of Brick and Mortar Colors.

Insist on seeing this label

Full particulars and prices gladly furnished.

Insist on the genuine "Clinton" colors made only by

Clinton Metallic Paint Co. **Clinton, N. Y.**

P. O. BOX 38

CARS

Pettigrew Dryer Cars are strong, yet easily moved, and will not warp in the dry kilns. Have been used for years by leading brick manufacturers.

We also manufacture special cars, turntables, grate bars and grey iron castings. *Prompt and Satisfactory Service Guaranteed.*

Pettigrew Foundry Co.
Harvey - - Illinois

CARS

SERVICE

When you buy Hinde & Dauch Corrugated Boxes you can depend on getting service as well as quality.

Our branch offices enable us to handle orders in all parts of the country promptly and intelligently. Our men are on the ground and they know boxes.

The Hinde & Dauch Paper Co.
Sandusky, Ohio

326 River St., Chicago.
311 Drexel Blvd., Philadelphia.
4139 Jenkins Arcade, Pittsburgh.
P. O. Box 50, Station H, Cleveland.
1400A Third Nat. Bank Bldg., St. Louis.
185 Devonshire St., Boston.
100 Hudson St., New York.

THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

has been given the contract for furnishing brick for sixteen buildings soon to be erected for the Remington Arms Company, each of which is to be 300 feet long and five stories high. The construction will require approximately ten million brick. The Stiles & Hart Company has yards at Weir, Mass., a suburb of Taunton, and at North Haven, Conn., and some of the brick to fill the contract probably will be made at each place although the larger part will come from the Connecticut yards.

DISTRICT OF COLUMBIA

Reports obtained from the various Washington (D. C.) brick companies and outside companies having offices there, are to the effect that business is holding up well. While there are very few large contracts being given out there are many small jobs. Building permits have just been taken out for a $600,000 and a $500,000 apartment house, both to be built of brick. The building permits were better in June than in May.

Just what reorganization steps are to be taken by the Washington Silicate Brick Company cannot be found out at this time. The following advertisement has appeared in the Washington papers:

> "Sealed tenders will be received up till Thursday, June 24, at 12 o'clock noon, for the purchase of the business of Washington Silicate Brick Company, as a going concern, including the entire assets of the company. The highest nor any tenders are necessarily accepted. Tenders should be addressed to F. B. Allan, president, Washington Silicate Brick Company, 611 Colorado Bldg., Washington, D. C."

Bids were not opened at the office at noon on June 24. No information could be obtained further than the fact that the company had decided not to "sell out." It is said that some kind of a reorganization will take place. The company is said to be in good condition.

IDAHO

The Perth Amboy Terra Cotta Company of New Jersey has begun the erection of the first unit of ten brick kilns at Plummer Junction, Idaho. The estimated cost of buildings, kilns and equipment contemplated for the present season will approximate $500,000. The main distributing offices of the company are to be in Spokane, Wash., and will serve the entire Northwest. A paving block factory is to be opened in connection with the plant, with a capacity of 200,000 blocks per day. The main building, which is planned for construction this year, will be 250x150 feet, two stories high.

ILLINOIS

In spite of local labor troubles among the building trades and with the prospects for the sale of brick during the next few months anything but cheerful, the Illinois Brick Company, Chicago, Ill., has announced a semi-annual dividend of three per cent, payable July 15.

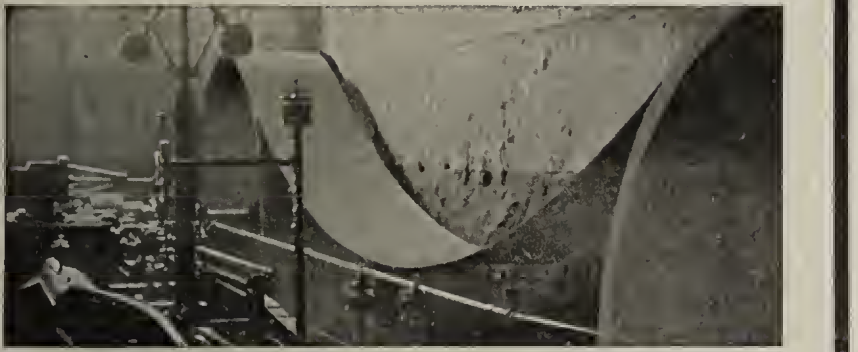
INDIANA

In order to facilitate the keeping of its records, the Clay Product Company has transferred its accounting department from the Chicago office to the plant at Brazil, Ind.

J. L. Klemeyer, of Klemeyer and Davis, Vincennes, reports that the brick company he is promoting at Loogootee, Ind., has been financed and that work on the plant will start about July 10.

Joseph Nussel, who learned the clay business from the bottom up at the old Excelsior Clay Company's plant at

GIVE YOUR BELTS SPECIAL CARE DURING THEIR FIRST YEAR



Belts like many machines, settle down to their best work only after use. They **should** run better the second year than the first, but they won't **unless the good which is in them is kept there.** Cling Surface makes belts better. You need it for both your new and your old belts. Send a trial order or at least request our literature.

CLING-SURFACE CO 1029 Niagara Street BUFFALO N Y

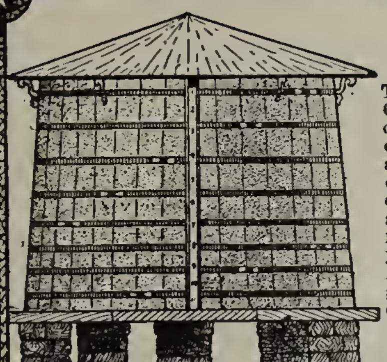
IT PROTECTS THE PLANT AND KILNS. **In the long hours of the quiet night** *THINGS WILL HAPPEN*

A Hardinge Watchman's Clock

sees and records, in all sections of the plant, once each hour. Our booklet tells. **Complete system $36.00.**

Hardinge Bros., Inc.
1760 Berteau Ave. Chicago

Approved and labeled by National Board of Fire Underwriters



"The Tanks with a Reputation"

The unequalled serviceability of the CALDWELL CYPRESS TANK is because of its unequalled quality of materials and construction. We use only the "everlasting" cypress from the Louisiana swamps, that outwears and outlasts every other kind of tank wood, being practically as durable as steel. These tanks are hooped with such care and precision as to be absolutely tight, not for a season but for an indefinite number of years. Caldwell construction makes leaking impossible, and repairs unnecessary. Investigate the Caldwell tank and you will take no other. Ask for illustrated catalogue.

W·E·CALDWELL CO.
(Incorporated)
LOUISVILLE, KY.

TRADE PAPER ADV. AGENCY, N.Y. Nº 591

Brick Houses
And How to Build Them

A book containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc.

The houses shown are all of artistic design drawn by leading architects and show what can be accomplished by the use of brick as a building material.

Price, Postpaid $1.00

Book Department *Brick and Clay Record* Chicago

WE CAN MAKE
PROMPT SHIPMENTS
OF
DU PONT EXPLOSIVES
AND BLASTING SUPPLIES

DESPITE the present demands for explosives, our facilities for securing materials, the operation of extensive powder plants equipped with special machinery and expert employes, and ample storage and shipping arrangements enable us to promptly and satisfactorily fill all orders.

Over a century's experience in the explosive field gives us a practical knowledge of its requirements. The superiority of our products is recognized by world-wide demands.

Specify DU PONT when purchasing explosives and blasting supplies, and be assured of prompt shipments, uniform quality and maximum efficiency.

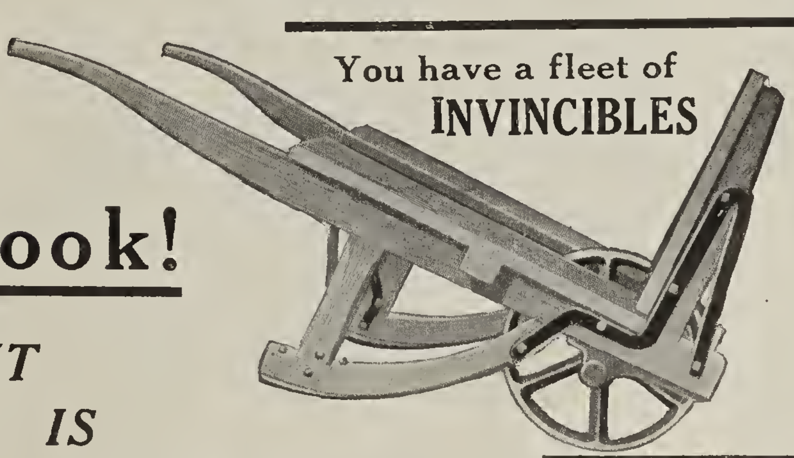
DU PONT POWDER COMPANY
Established 1802 **Wilmington, Del.**

But—You Can't Do It!

You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

UNLESS

You have a fleet of INVINCIBLES



Look!

IT IS BALANCED

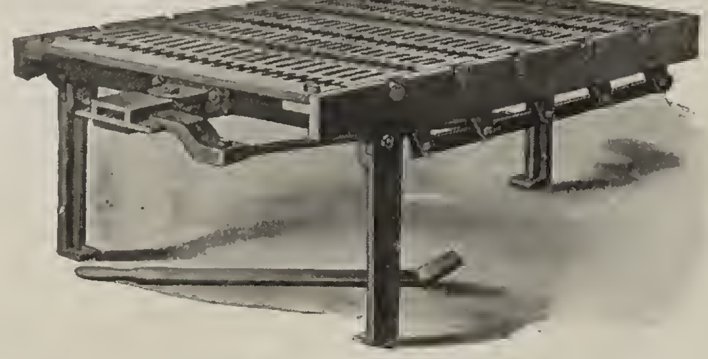
The axle is under the load—NOT at one end of it.

It slides—down the runway—and the hind legs don't rip and tear.

It Rides its Load

THE TORONTO FOUNDRY AND MACHINE CO.
TORONTO, OHIO

THE CANTON KILN GRATE



FOR THE PLANT THAT COUNTS THE COST

Are you sick and tired of the kiln furnace that gums up every four hours or less with a ball of clinker?

Do you want to prevent the loss of 100° of heat each time clinker time comes?

Do you want to put one dollar's worth of heat into the kiln, from each dollar's worth of coal you buy?

Would you fire your boilers with the same kind of furnaces that you use on your kilns? Basically—aren't they the same?

THINK—It is applied common-SENSE. Avoid spending so much money for coal.

Send for Bulletin B. It tells you how

CANTON GRATE CO.
1706 Woodland Ave., CANTON, OHIO

"A chain is just as strong as its weakest link"

That is an expression that never would have been coined if all chains were

Woodhouse Specials

There are no weak links in the chains that we build for

Steam Shovels

They are strong and tough; hand-wrought of selected pure pig iron, treble-worked and re-rolled.

Place your trust in Woodhouse Chains
"They won't break"

Prices—Testimonials—Catalog on request

WOODHOUSE CHAIN WORKS
Trenton, New Jersey

Brazil, Ind., is interesting Brazil capital in a company to operate a clay plant at Attica, Ind.

Max Zeigler has bought the B. W. Bennett & Company brick yard at Muncie, Ind. He will wreck the plant, he says, and sell the salvage, which includes about 1,000,000 brick and 100,000 feet of lumber, not to mention the machinery.

Elkhart township, Ind., the metropolis of which is Goshen City, has disposed of a bond issue of $67,000, for the purpose of improving its section of the Lincoln Highway a distance of five miles with brick. The contract will be let in a short time and the work started and finished during the summer.

IOWA

The Des Moines Clay Company, Des Moines, Ia., is now erecting a new kiln at its plant.

KENTUCKY

The city of Covington, Ky., has appropriated $40,000 for the reconstruction with brick of Monmouth and York streets, other work with this material having proved highly satisfactory. The work will not be started, however, until after the street-car franchise matter has been determined, as there may be some street-railway construction involved, and it is considered advisable to take care of all street work at one time.

Deliveries to jobs on which contracts have been obtained by the Coral Ridge Clay Products Company are keeping that plant busy though George H. Fiedler, manager, is feeling the lack of large and numerous orders as is the case with other manufacturers. Orders for small quantities are fairly numerous when the company cares to try for them.

The R. B. Tyler Company is receiving congratulations generally on the appearance of the new Boys' High School, which is nearly completed and for which it furnished the face-brick. This is regarded as one of the best of the high class brick jobs done in Louisville in some years. Like other companies, this one is looking forward to the letting of the contract for the Belknap school brick and will also be in on the bidding for the brick to go into the new Y. M. C. A., on which $300,000 is to be expended this summer.

The Lexington Brick Company has a claim of almost $2,000 against the Whitton-Wheeler Contracting Company, of Louisville, which filed a voluntary petition in bankruptcy when in the midst of building operations on the Phoenix Amusement Company, of Lexington, Ky. The bankruptcy proceedings have halted work on the Lexington motion picture job, which is to be a superior structure of brick and terra cotta. The bonding company is making good on the delay at the rate of $25 a day.

Discussing the tendency of manufacturers and other power users to put their isolated electric plants out of service and subscribe to central station service, Mr. Bell, of the Louisville Fire Brick Company, said he did not think it would have any appreciable effect on the fire-brick business, for the reason that the central station plants prepare so elaborately to give this service and require such a large volume of brick that the difference is made up and in such a way that there is usually better profit in supplying it.

F. Moser, general manager of the Louisville Sewer Pipe Company, jobbers, is just back from a three weeks' trip over the South, made for recreation, rather than for business. The summer is proving a good one from this company's viewpoint, there being a good volume of small orders handled by the plumbing trade in connection with

Let The Burner Have A Thwing

Indicating Pyrometer in his shed connected by a dial switch to one or more Thermocouples in each kiln.

Then he will not need to be making excuses for poor firing and poorer product. With a knowledge of the temperature before him, he can control his firing and produce better ware with less fuel.

Write for Bulletin No. 7

Thwing Instrument Company
437 N. Fifth Street, Philadelphia, Pa.

How Much Does It Cost You To Move Your Cars?

More, perhaps, than you can calculate because no one has ever stopped to figure it out for you. This is one of the seemingly little items of expense that cut down your profits and make you wonder why you didn't make more money.

But you can change all this if you'll spend just $4.00.

The IDEAL Car Mover

and one man will move a loaded car with ease and save you many times its cost during the year.

Send for one on trial. Send it back if you don't want it.

We specialize in clay plant equipment, including elevators, screens, cars, track, switches, etc.

Write today for our Catalog

H. B. SACKETT SCREEN & CHUTE CO.
1681 Elston Ave., Chicago
Branch Warehouse:
191 Medford Street, Charlestown, Mass.

SACKETT 1685 ELSTON AVE CHICAGO

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only **high in strength** but **dependably uniform.**

A perfect vitrified paving block of **your manufacture** used with a perfect cement filler of **Lehigh** Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use **Lehigh** Cement than all others combined.

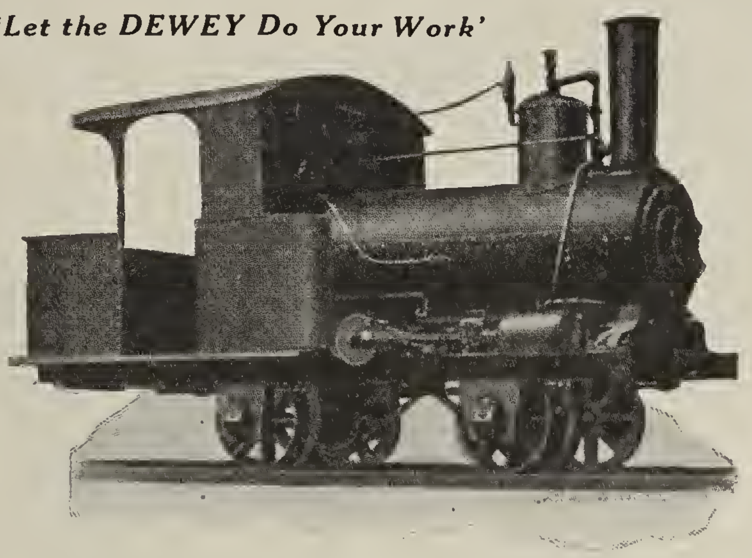
You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH CEMENT

$1200 Buys a Dewey

"Let the DEWEY Do Your Work'



And no matter how much more you might pay, you wouldn't get anything better—dollar for dollar. The Dewey is far ahead of any other locomotive on the market. Let us prove it—a card will bring the truth.

DEWEY BROS., Goldsboro, N. C.

"HESSTEEL"
Automatic Safety Car Wrench

Prevents Injury Absolutely

Do you receive your coal and sand in hopper bottom cars?

Then you realize the dangers and difficulties involved in opening the hoppers of the drop bottom or side dump cars.

As the door suddenly opens after being started with the old style wrench, the operator must pull the wrench off quickly or promptly jump from under. Failure means broken arms, legs or heads.

The usual ratchet wrench is just as dangerous; its sole advantage lies in its convenience in applying quick, short strokes.

Send for pamphlet.

The Hessteel Ratchet Wrench combines Speed and Automatic Safety

THE HESS STEEL CO.
BRIDGETON, N. J.

Reduce Your Handling Costs

by the Purchase of Efficient Equipment

No. 1205
Triple Deck Dryer Car supplied with or without decks of wood or steel.

ATLAS
High Efficiency Cars and Electric Locomotives

Rocker Side Dump Car
Also made in end dump. Above car made for loading with steam shovel.

No. 5730
Storage Battery Locomotive. One end operated.

will meet your requirements.

Let us send you catalogue and quote prices.

The Atlas Car & Mfg. Co.
Dept. I
1287 Marquette Road, Cleveland, Ohio

the residence building work in the city. Mr. Moser's interest in out-of-town work is very mild, since the company handles little more than a local business.

The Louisville Fire Brick Company is getting a good deal of publicity in Louisville and earning a good deal of prestige on account of the contract received from the government for the navy yards and for the Panama Canal work. Much is being made of the fact that the bid of this company was about the average of the proposals of the seventeen who competed for the order. The company has just made one of its periodical shipments of four carloads of fire-brick to the Panama Canal, shipping via New Orleans.

The Tyler Building Supply Company has taken a contract to supply 50,000 face-brick to the First National Bank, at Paris, Ky., one of the better jobs out in the state; the P. Bannon Pipe Company is continuing to ship tile to a number of out-of-town construction jobs and there are various other jobs in prospect which the Louisville trade is looking toward with a good deal of hopefulness. Meanwhile the Commercial Club Bureau has broadened the scope of its manufacturers' display to include the manufacturers of the three Falls' Cities, which include New Albany and Jeffersonville, Ind., just across the Ohio river, and it is announced that with more than 9,000 feet of the space definitely contracted for, the exhibition has become an assured fact. Though there has been no statement given out as yet as to what manufacturers will participate, it is understood that the clay products manufacturers are well represented.

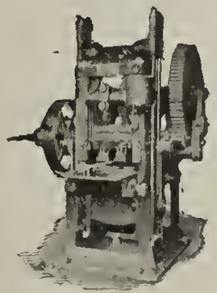
With not a great deal of building under way or in prospect in the city of Louisville, Ky., except for smaller structures, numbers of the local brick men are turning their attention to chances of business in the country. Whatever may be said of industrial conditions in Louisville and other cities of the state, there is no gainsaying that the agricultural interests are prospering, and, Kentucky being primarily an agricultural state, general business conditions are good. Lawrenceburg, county seat of Anderson county, has a courthouse to construct, one series of bids having been received and refused because they all ran over the architects' estimates. This is to be a brick structure and a second set of bids has been presented. In Pleasureville a large part of the business section is being rebuilt after a disastrous fire, and brick is getting a good part of the call. Of the Louisville manufacturers, the Southern Brick & Tile Company is getting the lion's share of this business, shipping f. o. b. destination in carload lots.

A. P. McDonald, sales manager for the P. Bannon Pipe Company, recently back from the "booster" trip through Eastern Kentucky, has learned of the plans of the city of Harlan to supplement its new water system with a sewer system. An election has been called for July 12 to vote on $12,000, $7,500 of which is to be put in this sewer and this will mean a nice sewer pipe order for somebody. Interest also is being taken in the projected $200,000 sewage disposal plant which Lexington, Ky., is planning to build and for which the bond issue will be voted. The character of construction is not determined as yet but the sewer-pipe manufacturers believe that they will get a look in on some of this business. Mr. McDonald reported that the company is satisfactorily busy in deliveries, since it is supplying the tile for the new $100,000 Belknap school, for which the brick has not yet been specified; tile to the new half million Ford Motors Co. plant and various out of town jobs. The sales of the company's patent pipe are

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

We Manufacture



Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.

Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. **The Lakewood Line is Built to Last.**

Ask for Catalog No. 11

Lakewood Engineering Co.

Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

More and More

Brick Manufacturers

are using Nuttall Cut Gears because they eliminate

Rejections

Cut gears give maximum efficiency and do away with vibrations.

Address

Nuttall - - Pittsburgh

To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

Literature on Application

Other High Grade Chemicals For Clay Industries

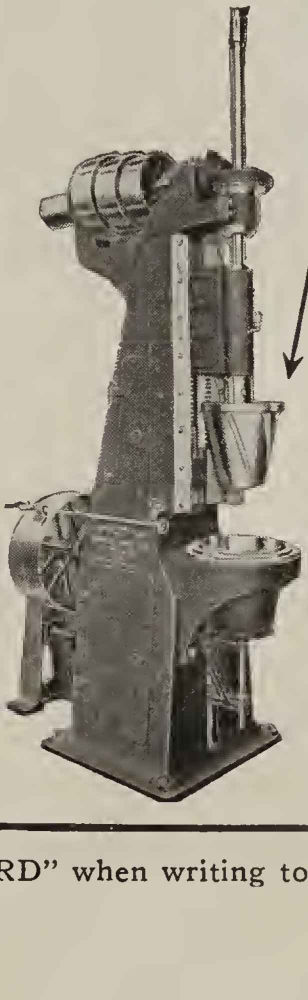
The Roessler & Hasslacher Chemical Company

100 William Street, New York

Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the



Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

holding up well and shipments go to all parts of the country and up into Canada in regular volume.

The out-of-town business of the Southern Brick & Tile Company also is forging ahead, shipments in carload lots to Pleasureville and Lawrenceburg being the rule, while another big order has been received from the Louisville Gas & Electric Company which has been doing a lot of building at its Waterside generating plant during the last two years. This order is for more than 100,000 and will represent a total of about half a million deliveries to this concern. T. Bishop, whose drain-tile installations are attracting considerable attention, has just closed a contract with Dr. A. T. McCormack, of Bowling Green, secretary of the State Medical Association and for many years a prominent member of the State Board of Health, for draining his farm at Auburn, Ky., near Bowling Green. Mr. Bishop has completed the survey and shipped the ditching machine as well as a carload or more of tile to begin the job. This is one of the first considerable installations in Warren county, and, having been contracted for by a man of Dr. McCormack's standing, should be followed by other orders in the near future.

Of the local manufacturers the best relative statement of conditions probably comes from the Hillenbrand Brick Company. Oscar Hillenbrand stated that the sales of the company's face-brick, which are selected as the kilns are unloaded and assorted as to color, have increased in the last several weeks from the rate of between 80,000 and 90,000 a month to 200,000 and that June saw an excess of that number put out. At the same time the company is running to capacity and selling all the hard brick that can be fired. This is at the plant's maximum capacity. The contract for the hard brick for the new executive building of the Methodist Church, at Fourth street and St. Catherine, has been awarded to the Hillenbrand Company and deliveries are being made at the rate of 6,000 daily, the rate enabling the company to use two horse drawn wagons efficiently. This contract will take 300,000 brick. The Hillenbrand company appears to be getting a major portion of the smaller residence work. The company would like to do some overhauling, but Oscar Hillenbrand said that it did not have time to shut down long enough to make the necessary repairs.

MAINE

Brick making facilities at the Lucas Company's yard in the Nason's corner section of Portland, Maine, are being extended, new kilns and other apparatus being installed.

MASSACHUSETTS

The Fitchburg (Mass.) Brick Company has secured the contract for furnishing several thousand brick for a new dormitory being erected at Cushing Academy, Ashburnham, Mass. The first delivery on account of the contract has already been made.

A new brickmaking plant is to be located at Ware, Mass., the work of building the necessary structures having already been started. Alexander Caren, of Brookfield, is the owner of the new industry, and will operate his plant on land leased from John Lubelezyk on the Palmer road. Mr. Caren states that the quality of the clay on the leased land is excellent, and that there is enough to last for several years. The plant will border on the Boston and Maine railroad, a side track from which will

Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives
are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.
A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.
Represented by
F. W. Weston, 50 Church Street, New York, N. Y.
Charles Riddell, 625 Railway Exchange, Chicago, Ill.
C. H. Peterson, 1610 Wright Building, St. Louis, Mo.
George F. Jones, 407 Travelers Building, Richmond, Va.
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.

DURO
Everlasting
Clay Block Silos

will increase your sales and profits
Easy to Make Easy to Sell
The Door-Frame Construction is a Marvel
It makes the silo such a solid piece of masonry that it is practically everlasting and indestructible.
We will furnish all the parts, except the blocks, for a very nominal sum, or will sell the right to use our patented device for small royalty. Address at once.
Mowrystown Brick & Tile Co.
Mowrystown, Ohio

Carbide Paint

Heat Resistant and Fireproof

It is

a paint that cannot burn, and is proof against acid, gas, or alkaline fumes.

It will adhere to galvanized metal, brick, tin or zinc. It is sanitary and durable.

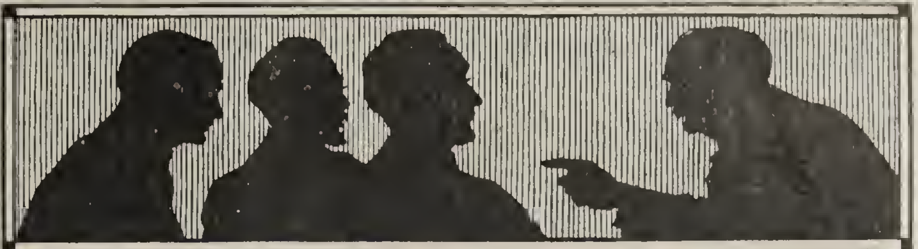
It should be used on

All wood buildings, both as a preservative and to guard against fire. This particularly so of walls and roofs near boiler, dryer and kilns—it should be used on inside and outside of boiler settings, kilns, dryers, and all exposed flues, to prevent the escape of heat or the influx of cold air, thru cracks or joints.

It prevents incipient fires; it saves loss of dollars on every unit that it is applied to.

Complete information from

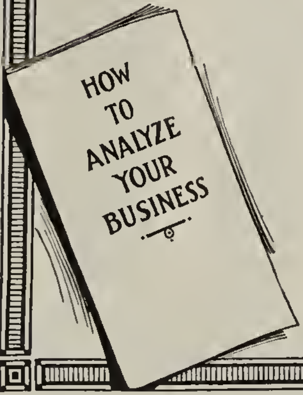
E. R. STOWELL,
INVENTOR AND PATENTEE
ODEN, MICH.



Would You Be Interested

in a plan whereby the kinks in your plant would be eliminated, daily production uniformly increased to capacity, wages raised, all costs reduced?

That's our plan—it is our business. We are successful in making others successful. We create profits from wastes.


HOW TO ANALYZE YOUR BUSINESS

We have done this in many industrial plants, including terra cotta and brick works. We can do it for you.

Our Booklet, "How to Analyze your Business" will interest business executives.

L. V. Estes, Incorporated
Engineers
McCormick Building, Chicago

IN THE HEART OF THINGS

$2.50 Per Day
A pleasant room with private bath, facing large open court. (Not one room, but one hundred of them.)

$3.00 Per Day
An excellent room, with private bath, facing Street. Southern exposure. (Not one room, but eighty-seven of them.)

Also attractive Room without Bath for $1.50 per day. The Restaurant prices are most moderate.

Make Your Dollar Produce More in a New York City Hotel

Location

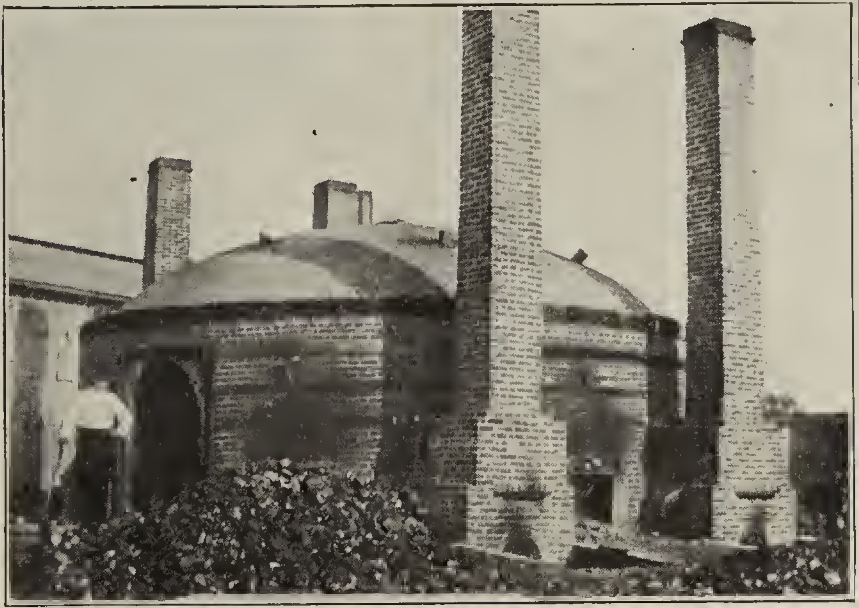
One minute from 5 of the largest department stores. Five minutes' walk from 19 principal theatres. Within a block of the Fifth Avenue shopping district. Every line of transportation passes the door. Fifth Avenue Bus lines and principal surface lines. The Hudson Tubes across the street. Elevated Railroad Station across the street. Subway Station three minutes away. Grand Central Station within seven minutes. Pennsylvania Railroad Station just one block away. **For convenience one could ask no more.**

The Hotel—600 Rooms, 400 Baths

EVERYTHING NEW AND MODERN. A FIVE MILLION DOLLAR HOTEL EQUIPPED TO SATISFY THE MOST EXACTING TASTE.

All Baggage Transferred Free to and from Pennsylvania Station.

THE HOTEL MARTINIQUE
On Broadway, 32nd to 33rd Streets, NEW YORK
Charles Leigh Taylor, President Walter Chandler, Jr., Manager
Walter S. Gilson, Vice-President



The Improved Hook Patent Up and Down-Draft Kiln at Forest, Ohio

Mr. Asa Conley, who operates the Forest Brick & Clay Works, writes us under date of June 21, 1915: "This kiln has exceeded my expectations. I am producing good hard-burned ware on bottom courses. The direct heat can be applied at top and bottom at the same time, and it burns the ware uniformly."

Thirty-foot kilns of brick were burned in 82 hours, and 30-ft. kilns of tile, in 55 hours, including the watersmoking period. This kiln burns the ware uniformly, reduces the fuel consumption, lessens the time required to turn a kiln, and increases the output of salable ware.

The Improved Hook Patent kiln is the result of 27 years experience in the clay-product industry and is the most modern kiln on the market today. Can be installed in any kiln at a moderate expense. Write us for estimate of cost to change your kilns or build.

Ohio Kiln Company, Vigo, Ohio

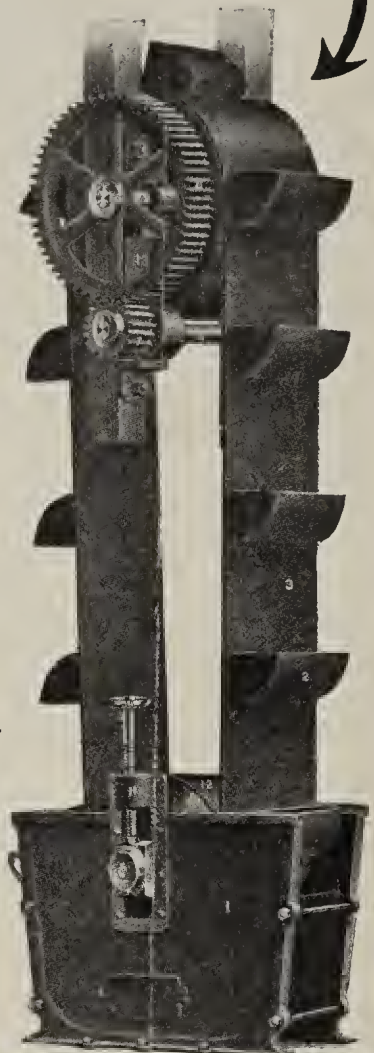
Here's a Clay Elevator Made to Suit Your Individual Requirements

The Stevenson

Guaranteed to work in either dry or wet clays.

Belt elevators run smoothly and noiselessly.

Made in any height, to handle any amount of material, any number of plies or kind of belt.



Made in the usual high grade that characterizes all STEVENSON products. Boot very heavy, with cast iron sides and ends, fitted with adjustable bearings and tighteners for taking up belt. All parts easily reached for cleaning and repairs.

Any width belt desired, or size of bucket.

Let us send you our complete catalog of clay working machinery and tell you more about the Stevenson elevator.

The Stevenson Company
Wellsville, Ohio
"In the Heart of the Clay Industry"

be run into the yard. It is expected that the making of brick will be started about August 1.

MICHIGAN

The Central Michigan Clay Products Company, Williamston, Mich., has been incorporated with a capital stock of $100,000.

W. C. Ladendorf, formerly with F. B. Holmes & Co., Detroit brick dealers, has resigned and is now associated with John S. Haggerty, a manufacturer of common-brick, with offices in the Dime Bank building.

Russell L. Stoddard, recently appointed manager of the Detroit branch of the National Fireproofing Company, has become a member of the Detroit Board of Commerce, the leading business men's organization in the city.

During the first four months of this year a total of 240 permits for brick and hollow-tile construction was issued in Detroit, having a valuation of $3,115,815. Among the more important projects during that period were five schools, two office buildings, one church, and one theatre.

The Greenfield Coal & Supply Company, Greenfield, Mich., has been organized to deal in builders' supplies, sewer-pipe, tile, etc. The company has an authorized capital stock of $14,000, all of which has been subscribed, $778.37 having been paid in in cash and the balance in property.

The biggest advertiser for the brick industry in Detroit today is Frederic B. Stevens, who is conducting a very aggressive advertising campaign, using every medium available. Evidence of results is proven by the fact that he has materially increased his orders to the factories, made extensive improvements in his delivery department and taken on more storage space. He specializes heavily on vitrified brick, fire-brick and face-brick and makes a specialty of stock deliveries.

It has been announced that Henry Ford will build another immense plant in Detroit, and, since most of the Ford buildings are faced with good, impervious brick, the new plant is expected to bring at least one large face-brick order into being. Great efforts are being made by the Detroit Brick Manufacturers' and Dealers' Association to induce Henry Ford to build the interior part of the buildings with brick, instead of reinforced concrete. The new plant will be devoted to the manufacture of auto-tractors, which, it is said, will be retailed at $200 each.

In addition to the new Ford plant, a large group of homes will be built for the employes, the site being at some distance from the center of the city and in a section that is but slightly improved. Detroit has a number of these sections, especially to the north of the city, which are rapidly developing and which furnish a growing market for clay products.

An interesting situation is developing in Detroit, Mich. Although none of the brickmaking plants that supply the Detroit market made any increases in their capacity, they are busier today than at any similar season in previous years. The same may be said of the offices that deal in face-brick. The reason for this is obvious—no more brick are being made and sold than formerly, but the number of orders is very much larger—the customers more numerous—the cost of handling somewhat increased, but the tendency toward better prices making a certain balance. It is a very satisfactory condition for all concerned, it being a well known fact that when the jobs are large and

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Wood Moulds
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

Buy Heat Making Fuel
Not "Just Coal"

All that looks like coal is not always coal.

Slate, rock and various other non-heat producing minerals may be mixed with carbon—but they do not produce **heat.**

Yet you buy it—pay cash for it—when you buy "just coal."

Impure coal causes clinker and excess ash—increases the time of burning.

Impure coal costs ten times as much as pure coal.

Buy Long Flame Coal

It reaches the **bottom**—of your kilns.

If you burn paving brick, you are enabled to get No. 1 brick on the floor.

If you burn face brick, you can get beautifully flashed effects uniformly.

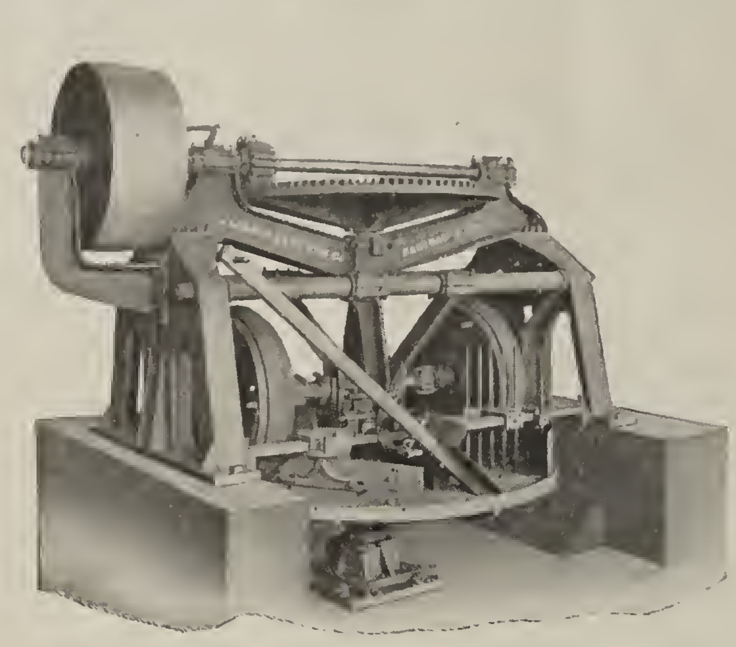
If you burn common brick or hollow ware, you can burn all hard—quickly.

Premium Coal burns hard and it burns to color.

Buy Premium Coal

It combines all the above features in one good coal—Price is reasonable—The quality is guaranteed—Try it and save money.

Big Creek Colliery Company
Peoples Gas Building
Chicago, Ill.
Galesburg, Ill. Minneapolis, Minn.



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

few, prices are not so good as when jobs are plentiful, but small.

MISSOURI

K. J. Stookey, formerly general manager of the Cedar Rapids (Ia.) Brick and Tile Company, has resigned his position with that company to assist his brother, Carl W. Stookey, who is general manager of the Edwards Brick Company, Columbia, Mo. An increase in business on the part of the Edwards Brick Company has necessitated this change, the plant having this year begun the manufacture of hollow ware, the demand for which has been so great that it has kept the force working extra time to fill the orders. The company is supply hollow building tile for local building operations; in fact, the demand in Columbia has been so great that orders for outside shipments have had to wait.

NEW JERSEY

Alfred W. Lawshe, treasurer of the Trent Tile Company, recently underwent an operation at the Mercer Hospital, Trenton, N. J., for an abscess of the ear. Mr. Lawshe had been in ill health for five weeks, and during the past several weeks had been confined to his home at 928 West State street. His condition was reported as being considerably improved following the operation and his physicians have hopes for a speedy recovery.

NEW MEXICO

The Gallup (N. M.) Coal and Clay Company has been incorporated with a capital stock of $25,000, by E. W. Dobson, W. S. Hopewell and H. C. Miller, all of Albuquerque, N. M.

NEW YORK

The report of the sale of the Dobbs-Frazier-Henderson Company, face-brick distributors, of New York City, has been confirmed. Mr. Henderson of this firm has associated himself with E. H. Cranwell, of the Kenwell Construction Company, in the Kittanning Sales Company, distributors of face-brick, at 1133 Broadway, where Mr. Henderson formerly was the local sales manager for the Harbison-Walker Company, which later became the Hay-Walker Brick Company and is now located at 470 Fourth avenue. He was succeeded by Robert C. Findlay. The Kenwell Construction Company is composed of W. F. Kenney and E. H. Cranwell and does a large construction business for the New York Edison Company.

OHIO

The Belden Face Brick Company, Port Washington, Ohio, has been incorporated by P. B. Belden and others with a capital stock of $150,000.

Boyd & Cook, of Piqua, Ohio, have been awarded the contract for the construction of a considerable amount of storm and sanitary sewers in that city, and have other work of the same sort in prospect, which will begin shortly.

The new colored Y. M. C. A., for which the cornerstone has just been laid in Cincinnati, will be one of the handsomest buildings of its sort in the country. The structure is to be five stories in height, and will cost in the neighborhood of $100,000.

The Shawnee Flash Brick Company, whose plant is located in Perry county, Ohio, has placed on the market the remaining $44,000 of the authorized issue of $75,000 in preferred stock. At the time the company was launched the common stock, amounting to $125,000 and $31,000 of the preferred stock, was sold. The company has been

Follow Me!

"The system installed at our plant has proven very satisfactory. We have burned a 22-foot kiln in as low as 26 hours. This time includes the water-smoking and high fire periods. We are burning coal as fuel at present, but have burned with wood alone and also in connection with coal with equally good results. Our average fuel consumption is about six tons coal per kiln."

This letter from an Ohio concern, and this report from a firm in Wisconsin

"Can burn either of Hook Kilns filled with drain tile in thirty-six hours including watersmoking. The average fuel consumption is five tons coal. Ware is uniformly burned and of good quality clear to the floor."

Are You Coming?

Listen—It's a fact that different companies have often taken tile that were so wet that they could be indented easily with the fingers and placed in the kilns. They set three or four dry courses on the bottom of the kiln, and then place the green ware above. They can burn this ware and secure a good, well-burned product, but of course, must give it a longer time to dry. It would be possible to fill the kiln completely with green ware, and burn it successfully, were it not for the fact that the green ware in the bottom would not support the weight of the other ware above.

So far all this has been written concerning the smaller type of kiln. But—

The system works equally well on large kilns and on kilns burning brick. We know that it will do all this on tile or brick, because we have seen it accomplished dozens and dozens of times. It is not a theory—it is a fact.

It will cost you only two cents to find out all about it, and investigation will pay. Write to the

Hook Patent Kiln Co.

Main Office: Vigo, Ohio

Canadian Office: 250 Dufferin St., Toronto, Ont.

Marion

REVOLVING SHOVELS

WHEN a brick-maker puts a Marion to work taking out his clay, *his costs of operation go right down, and the quality of his brick goes up.*

The clay can almost always be taken out without blasting, and, through the efficient mixing of the various strata between the bottom of the cut and the top of the ground, can be made ready with comparatively little grinding.

Marions not Only "Pay Their Board" but Help You Produce More Uniform Brick at Less Cost

We'll welcome an opportunity to show you just how and why this is true—for it IS true beyond any question. We have put our whole experience into the building of Shovels that will do this work in a thorough, efficient way, proving themselves "good producers" from *your* standpoint.

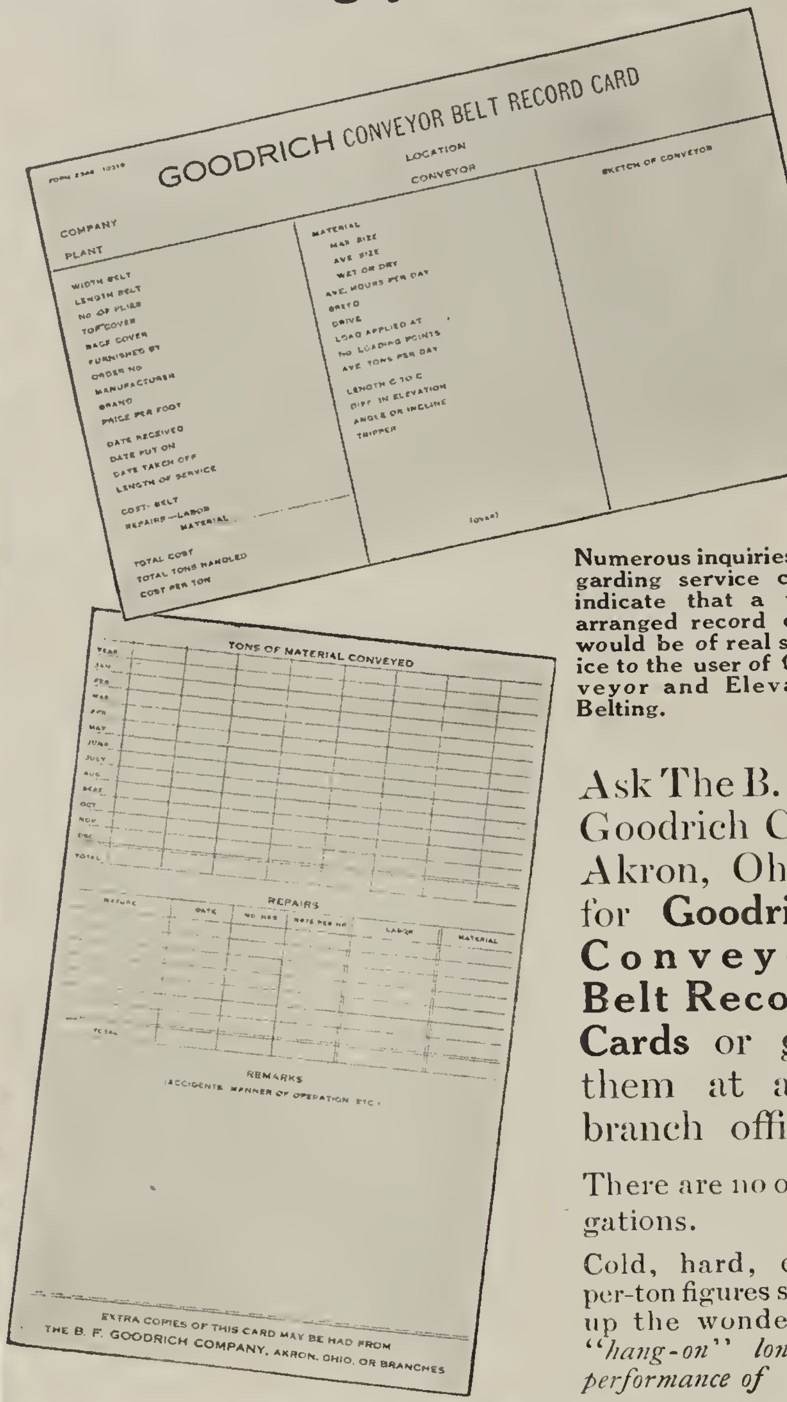
A great many of the progressive brick manufacturers of the country are purchasing Marions—because *there is a line of Marion Shovels built expressly for clay-digging and other extra-heavy work.*

Details are fully explained in our interesting booklet "Digging and Mixing Clay—One Operation" which we shall be very glad to send you on request for Catalog 921.

The Marion Steam Shovel Company,
Established 1884
STATION A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
Manufacturers of Excavating Machinery of Every Description.

4

Records like these tell just what your Conveyor Belts are costing you in service



FORM 2344 10219
GOODRICH CONVEYOR BELT RECORD CARD
LOCATION
CONVEYOR
SKETCH OF CONVEYOR
COMPANY
PLANT
WIDTH BELT
LENGTH BELT
NO OF PLIES
TOP COVER
BACK COVER
FURNISHED BY
ORDER NO
MANUFACTURER
BRAND
PRICE PER FOOT
DATE RECEIVED
DATE PUT ON
DATE TAKEN OFF
LENGTH OF SERVICE
COST- BELT
REPAIRS—LABOR
MATERIAL
TOTAL COST
TOTAL TONS HANDLED
COST PER TON
MATERIAL
MAX SIZE
AVE SIZE
WET OR DRY
AVE. HOURS PER DAY
SPEED
DRIVE
LOAD APPLIED AT
NO LOADING POINTS
AVE TONS PER DAY
LENGTH C TO C
DIFF IN ELEVATION
ANGLE OR INCLINE
TRIPPER
(OVER)

TONS OF MATERIAL CONVEYED
YEAR
JAN
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MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
TOTAL
REPAIRS
NATURE
DATE
NO HRS
RATE PER HR
LABOR
MATERIAL
TOTAL
REMARKS
(ACCIDENTS, MANNER OF OPERATION ETC.)
EXTRA COPIES OF THIS CARD MAY BE HAD FROM
THE B. F. GOODRICH COMPANY, AKRON, OHIO, OR BRANCHES

Numerous inquiries regarding service costs indicate that a well arranged record card would be of real service to the user of Conveyor and Elevator Belting.

Ask The B. F. Goodrich Co., Akron, Ohio, for **Goodrich Conveyor Belt Record Cards** or get them at any branch office.

There are no obligations.

Cold, hard, cost-per-ton figures show up the wonderful *"hang-on" longlife performance of*

Goodrich
CONVEYOR BELTS

It matters not what make you have used in the past, *keep the record* and you will *know* what belt to use in the future.

Write today. Our service department will gladly give you information based on forty-six years of experience that will help cut down tonnage costs.

Belting
Pump Valves
Matting
Packing
Footwear
Tiling
Hose
Etc.

are part of our complete line of rubber goods.

The B. F. Goodrich Co.
Factories: Akron, Ohio
Branches in All Principal Cities

Every *Goodrich Tire* is an argument for *Goodrich Conveyor Belt.* Every piece of Goodrich Conveyor Belt is an argument for *Goodrich Tires* Every factory is usually right or wrong clear through.

operating since 1905, and has a capacity of 40,000 brick each day.

Improving business, without any special feature, is reported by the Pursell-Grand Company, in common with other leading material concerns in Cincinnati. The gradual but certain recovery of the building field in this vicinity promises that the remainder of the season will be much better than usual, with plenty of work for everybody, and the company is getting its share of the business.

The board of education of Canton, Ohio, is having a large amount of work done, with more to let later on, which will call for large quantities of brick. The J. J. Burn school, a 16-room building, is to be started soon, while the Henry S. Martin School is to be let on July 8. The board will probably spend more money this year than ever before in any one year, and much of it will go to the brickmakers.

Damage to the extent of $5,000 to the plant of the Findlay (Ohio) Electric Porcelain Company, was recently caused by a tornado, which tore off part of the roof and damaged the walls. There were fifty men working in the building at the time, of whom all but four escaped without injury. The four were seriously injured. The company will at once make the necessary repairs to the plant, but it is believed that it will be several weeks before normal operations can be resumed.

The sale of the Starr-Hocking Coal Company's plant at Hamden, Ohio, at a receiver's sale, a short time ago, to the Jeffries Johnson Company, of Columbus, Ohio, was not unexpected, as the purchasing concern held a mortgage on the property for $85,000, and was able to secure it for an additional sum of $5,000. It is announced that the company is planning to construct a large brick plant on the property, which will consume the entire output of the coal mine, and utilize the clay in the vicinity.

OREGON

The City of Astoria, Ore., has specified vitrified paving brick for a twelve-foot strip along the center of all streets on which new paving is to be laid.

The Denny-Renton Clay & Coal Company, of Seattle, has, through its Portland, Ore., office, closed contracts for vitrified sewer pipe for North Bend and Marshfield, Ore.

The Phoenix Paving Company has been incorporated at Astoria, Ore., with a capital stock of $50,000 by W. H. Worswick, Jos. Penso, E. E. Gray and Norman Ross.

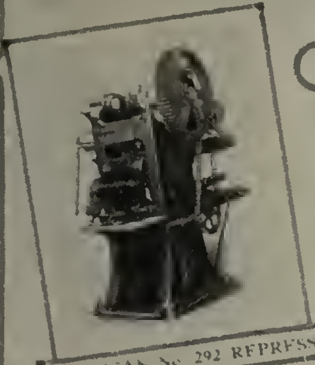
Louis C. Kelsey, 410 Selling building, Portland, Ore., is preparing plans and specifications for a new sewer system for Mt. Angel, Ore., and for a sewer system and disposal plant for Beaverton, Ore., the cost of the latter to run about $230,000.

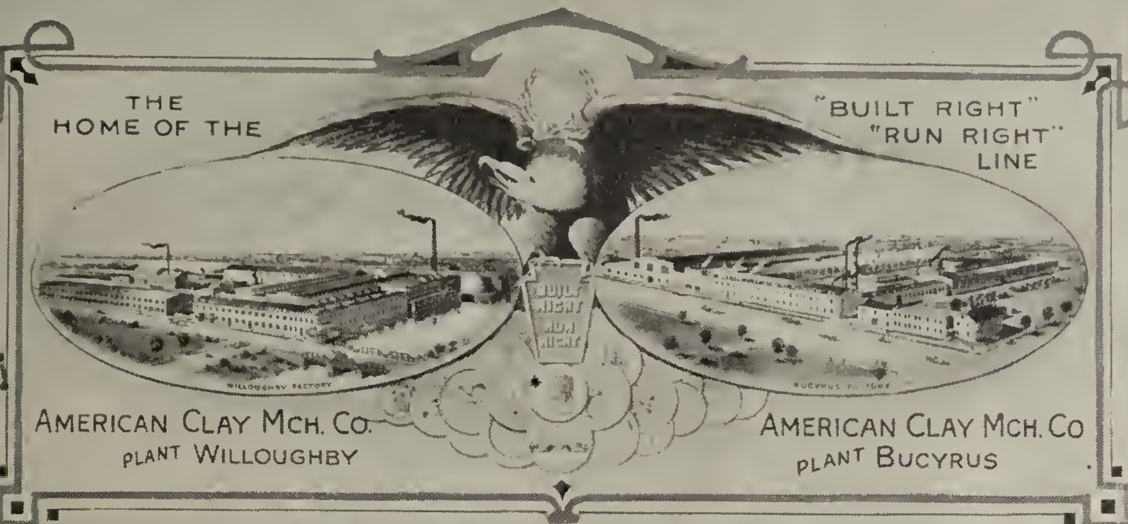
PENNSYLVANIA

Henry S. Harris, formerly manager of the Kane (Pa.) Brick Company, resigned his position with that concern to join the Pennsylvania Fireproofing Co., of Erie, Pa.

Plans are now being drawn for a new clay refining plant at Stanton, Del., for the Whiteman Clay Products Company, Philadelphia, Pa. It is reported that the new building will be one story in height, measuring fifty feet wide and one hundred and twenty feet long.

Joseph S. Maxwell, formerly superintendent of North Savage (Pa.) Fire Brick Works and holding an interest in the firm of Gloninger & Maxwell of Williams, Pa., has sold out to John A. Gloninger, who will conduct the plants at Welch Station and Williams, Pa., under the firm name of Gloninger and Gloninger. Mr. Maxwell has taken up his residence in Cumberland, Md.


AMERICAN No 292 REPRESS


THE HOME OF THE
"BUILT RIGHT" "RUN RIGHT" LINE
BUILT RIGHT RUN RIGHT
AMERICAN CLAY MCH. CO. PLANT WILLOUGHBY
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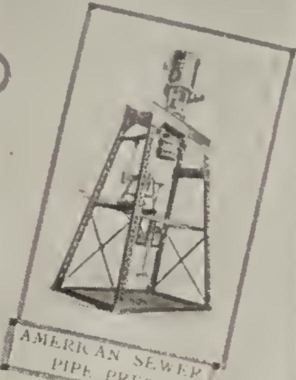
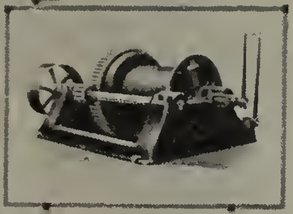
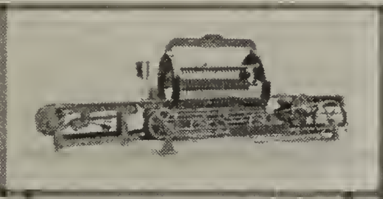

AMERICAN SEWER PIPE PRESS

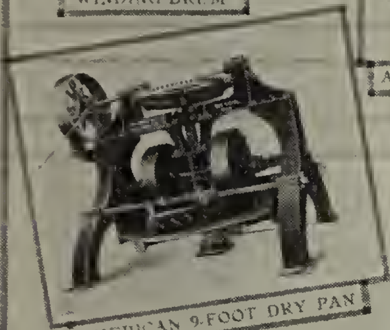

AMERICAN No 245 WINDING DRUM

AMERICAN No. 291 PUG MILL


AMERICAN No. 20 ROTARY AUTOMATIC CUTTER

AMERICAN DISINTEGRATOR

AMERICAN CLAY CAR


AMERICAN 9-FOOT DRY PAN

HAIGH CONTINUOUS KILN

It's a Pace-Maker

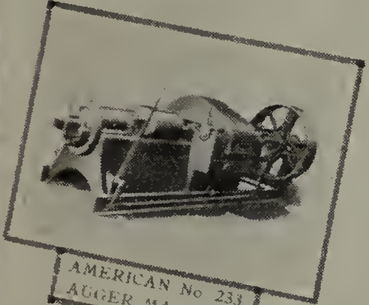
The American No. 292 Repress makes the pace for the rest of the plant. It speeds up the whole plant and has reserve speed in waiting.

The No. 292 is the modern brother of the old and popular Eagle. It has every new improvement which would in any way add strength or capacity and still insure quality.

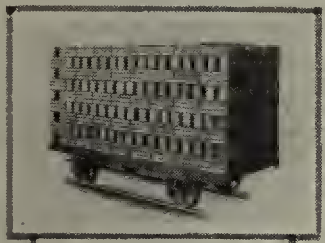
We want to give you a full description of this press, as it is the most profitable press for you to buy.

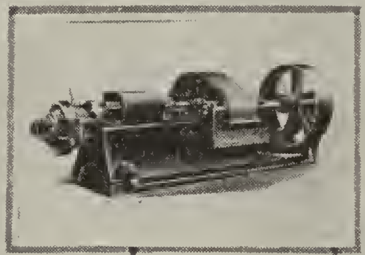
Get information on our new line of cutters, auger machines, pug mills and any clayworking machinery you may need. We build it all and give equal care to large or small orders.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.


AMERICAN No. 233 AUGER MACHINE

AMERICAN WASTE HEAT DRYER


AMERICAN DRYER CAR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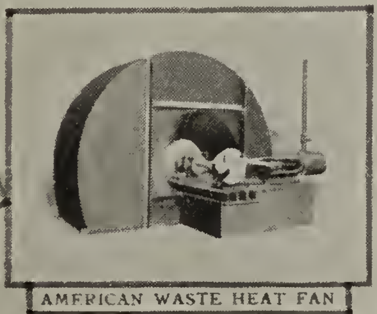
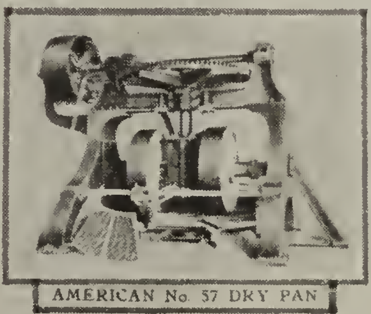
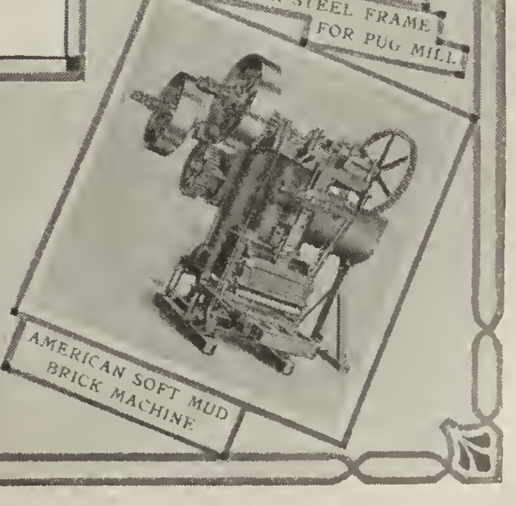
AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL

AMERICAN MODEL C DRY PRESS


AMERICAN WASTE HEAT FAN


AMERICAN No. 37 DRY PAN


AMERICAN SOFT MUD BRICK MACHINE

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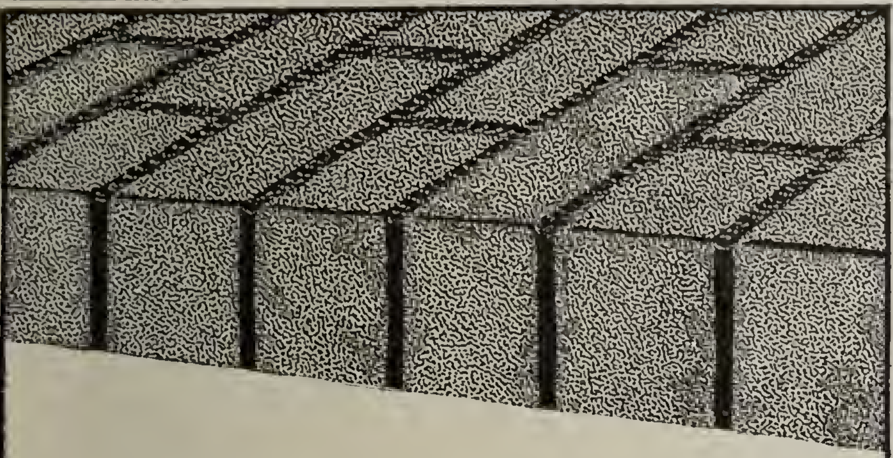

In Cold Weather

the blocks contract, the joints widen, the pitch sinks and keeps the seal intact.

In Hot Weather

the blocks expand, the joints grow narrow, the pitch squeezes upward. The seal is intact.

Barrett's PAVING PITCH

Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, especially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

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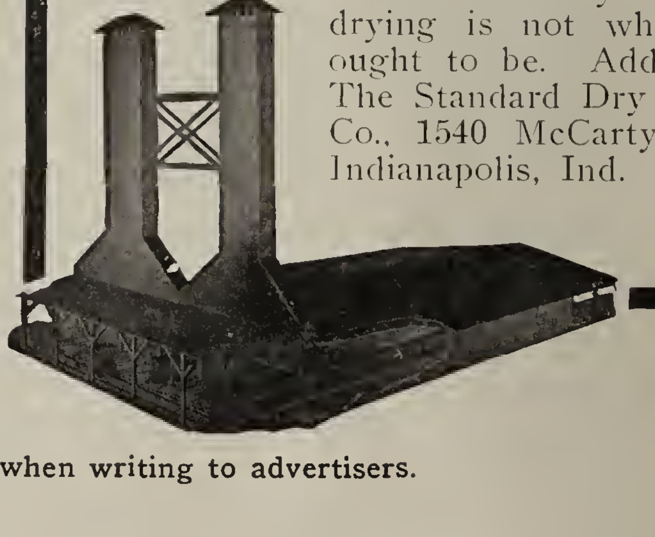
Bartlett & Snow Co., C. O.
Bonnot Co.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Steamers (Clay).
American Clay Machy. Co.
Schaffer . Eng. & Eq. Co.
Steam Separators.
Canton Grate Co.
Steam Shovels.
American Clay Machy. Co.
Marion Steam Shovel Co.
Thew Auto Shovel Co.
Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Steel Pallets.
Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.
Ties (Steel) and Tie Plates.
Cincinnati Frog & Switch Co.
Steel Towers.
Caldwell Co., W. E.
Supplies.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons. J. C.
Stevenson Co., The.
Toronto Fdry. & Machine Co.,
Wallace Mfg. Co.
Weller Mfg. Co.
Tanks.
Caldwell Co., W. E.
Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Manufacturers Equipment Co
Standard Dry Kiln Co.
Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Machine Co.,
Wallace Mfg. Co.
Time Clocks.
Hardinge Bros., Inc.
Tramways.
Ambursen Co.
Unloading Devices for Pans.
American Clay Machy. Co.
Bonnot Co.
Clearfield Machine Shops.
Toronto Fdry. & Machine Co.,
Watchman's Clocks.
Hardinge Bros., Inc.
Water Tanks.
Caldwell Co., W. E.
Wheelbarrows.
(See Barrows and Trucks.)
Winding Drums.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, F. & S. Co.
Weller Mfg. Co.
Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wrenches.
Hess Steel Co.

The Standard Drier is Doing Wonders

with all kinds of clays all over the brickmaking world. Let us refer you to a bunch of "other fellows" who can tell you "from the heart" how our Natural Draft Drying System will **tone up your product.** They **know**—because they were up against the same troubles before they installed The Standard Drier.

Write us today if your drying is not what it ought to be. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

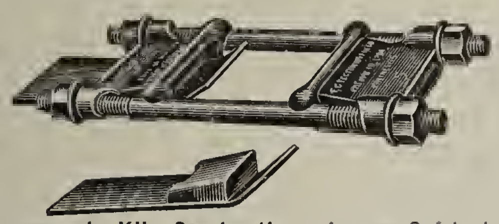
¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

ECTMCo

Tecktonius Kiln Band Fastener



Gives Permanency to Kiln Construction. Insures Safety to Kiln Contents.

WROUGHT IRON BANDS

Wall and Crown Guides
Crown Covers and Ventilators
Write for
Discount and Net Prices

E. C. Tecktonius Mfg. Co.
Racine Junction, Wis., U. S. A.

Up-and-Down Draft
Tecktonius-Vogt
Round Kiln

General Traffic Association, Inc., Woodward Building
WASHINGTON, D. C.

Composed of expert traffic men and attorneys who practice before the Interstate Commerce Commission, the various State Commissions and all the Courts.

Freight bills audited, claims for overcharge and loss and damage collected, cases prepared and handled before the Interstate Commerce Commission, where shippers and receivers feel that existing rates are unjust, excessive, inequitable, unreasonable or discriminatory, or will assist attorneys or traffic organizations in the preparation of cases. Correspondence solicited.

Build with Brick

Sheet Steel Signs
$5.00 per hundred
Write for prices of signs with your name imprinted
BRICK & CLAY RECORD
445 Plymouth Ct., Chicago

Build with Brick

THE STANDARD RATTLER FOR THE TESTING OF PAVING BRICK

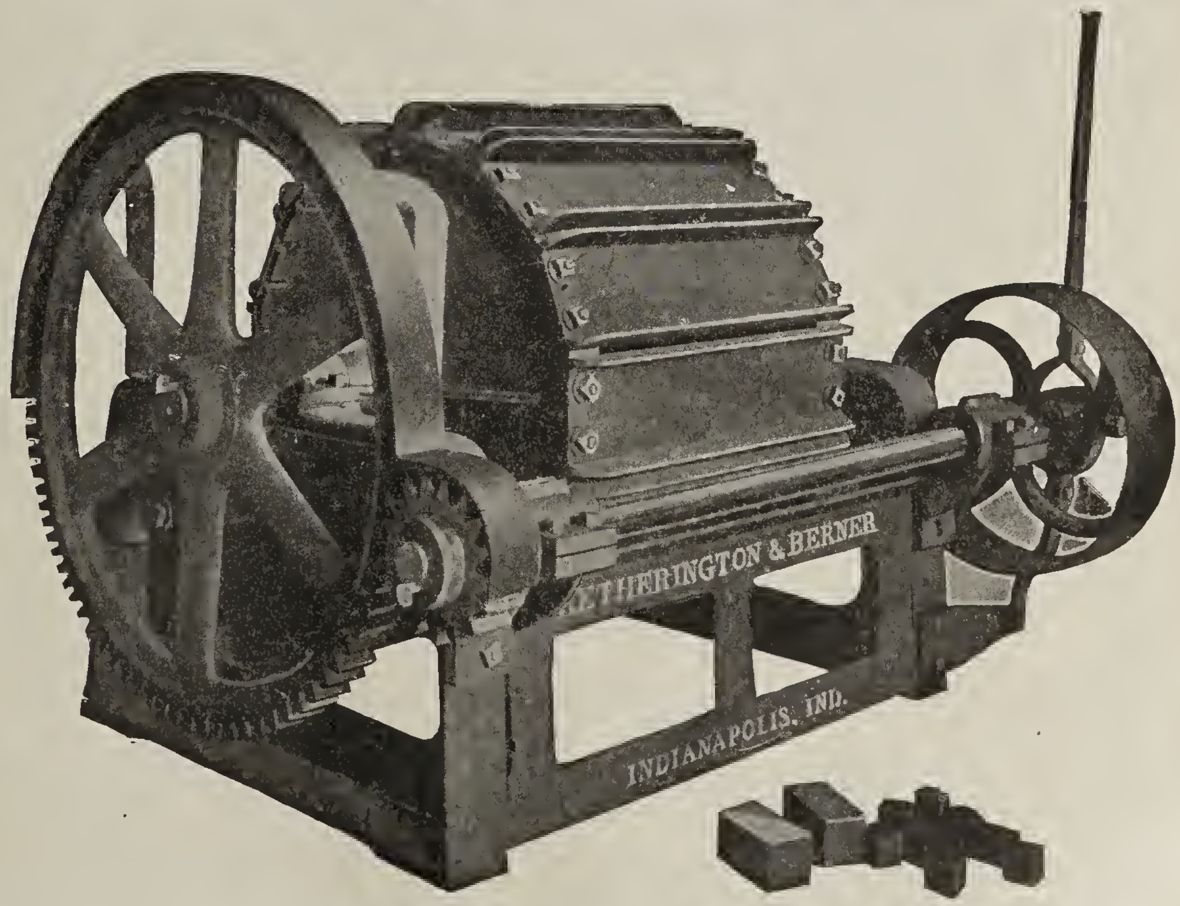
As we now build this machine it embodies all of the

LATEST IMPROVEMENTS

and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

For descriptive circular and prices address

HETHERINGTON & BERNER
INDIANAPOLIS, INDIANA

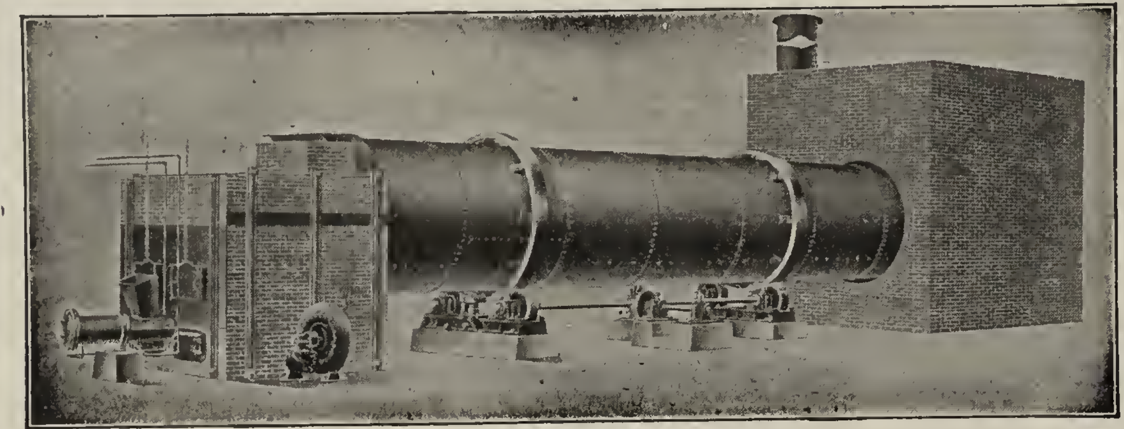


THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON
It Assures Uniform Product
YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

Style No. 12

A Time and Money Saver

We make a Steel Pallet that is just exactly
what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

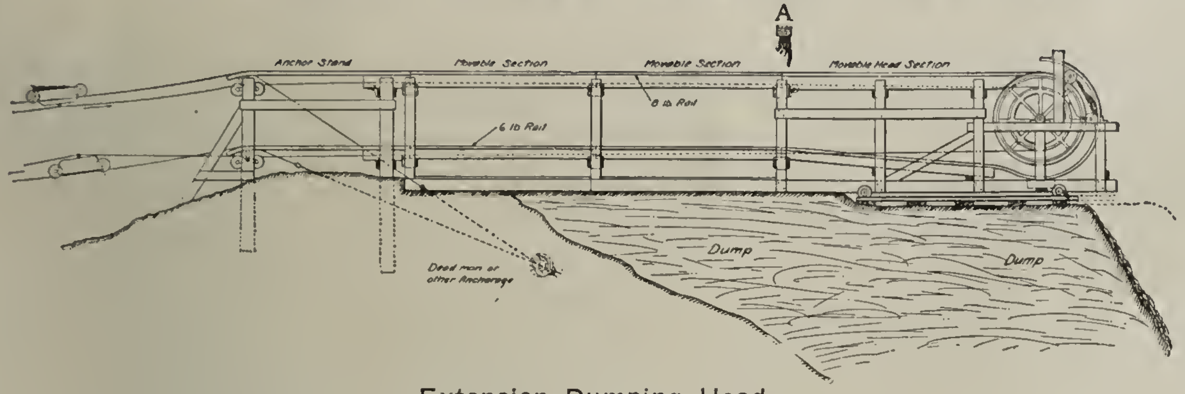
PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 500 1000	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 500 1000	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 500 1000	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

THE EXTENSION HEAD



Extension Dumping Head.

The problem of a movable or multiple dumping point is met by us in three different ways, the choice being governed by the conditions of service.

It often happens that a tramway is called upon to dump waste material on to a permanent spoil bank. The illustration is that of a coal mine which dumps its slate and gob over the crest of the mountain into a valley beyond. Ultimately this spoil bank will extend across the entire valley, a distance of 2,000 feet and in the bottom of the valley will show a height of say, 200 ft. Such a spoil bank will contain an immense amount of material and will serve for many years of continuous operation. In such a case it is most convenient to allow the tramway to extend itself along the top of the embankment which it creates.

The cables of the tramway are anchored permanently at the crest of the mountain. They deliver the car in the usual way to an anchor stand which in turn connects with a series of movable sections framed out of light timber and carrying a light T rail for the top and bottom lines. These sections may be made of any desired length, 10 ft. being found practical in this case.

The removable sections connect to the frame of the dumping wheel which is mounted on flanged wheels running on a movable rail resting on temporary ties exactly like a steam shovel.

In dumping, the waste material is thrown away from the dumping head with considerable force and gradually builds up the embankment as indicated by the dotted line. When the embankment is so high as to interfere with free dumping it is roughly leveled off on the top by hand placing so as to receive the ties for the next shift. The dumping head is then disconnected at point "A," rolled forward on loose rails, say 10 ft., the length of a section, and the gap filled with another section. One piece of haul rope is then taken out between any two cars and a correspondingly longer piece inserted. This completes the operation, the whole thing requiring an hour or so to shift.

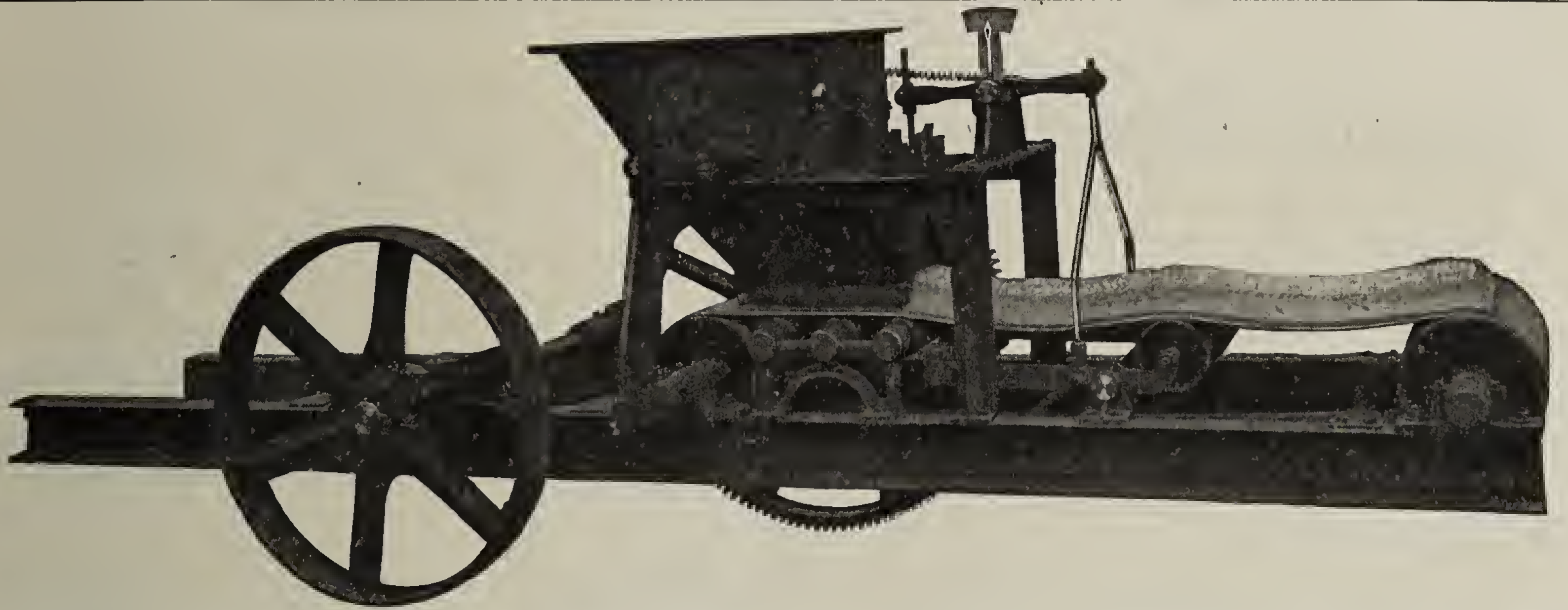
The little piece of haul rope is not waste because when the dumping head is advanced a distance equal to half the interval between the cars, a new car is coupled in to maintain the total capacity and the various pieces of haul rope, having been preserved, are used over again on further extensions.

In this way the tramway continually creeps ahead using its own dump as a foundation.

We have suspended terminal used under other conditions and still other requirements call for dumping cars. These will be considered separately.

Respectfully submitted,

AMBURSEN COMPANY, Tramway Dept., 61 Broadway, New York



The Schaffer Poidometer—*What it will do*

It Will
- —unite any number of materials in correct proportion.
- —deliver them to pug mill at a predetermined number of pounds per minute.
- —deliver water at a predetermined number of pints per minute.
- —produce a clay column evenly tempered, of absolute uniformity.
- —do this—and it eliminates the pug mill man.
- —reduce cracking, because the dry house man knows the material.
- —reduce burning loss, because the burner can always produce the same color and hardness.
- —pay for itself in one season by reduction in labor alone.
- —produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

Every Stitch Counts

—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

A Photographic Demonstration

This scene of the clay pit of the Jova Brick Works, Roseton, N. Y., shows a Schofield-Burkett Excavator in operation. It shows how this machine solved the clay digging and delivery problem in Hudson River district. Records show it loads about *300 yards* of tough clay per 10 hour day. A 75 H. P. motor supplies the power. This is actual *proof* that

The Schofield-Burkett Excavator

is the simplest, most practical and most economical earth moving machine ever devised. Without industrial cars and track, it will *dig* and *deliver* any kind of sand, gravel, clay or shale to your conveyors or hopper 100 to 600 cubic yards per day.

We Guarantee Results

We are ready to make a positive guarantee as to results. We take all the risk.

Get Our Catalogue No. 10 Now

Learn how and why the Schofield-Burkett Excavator will solve *your* problems—how and why it is more practical, simple and economical than any other.

Schofield-Burkett Construction Co.

Office and Works: Macon, Georgia

After 37 Years' Experience

THIRTY-SEVEN years of constant testing out on all kinds of belting service—that's what GANDY has had. And today it stands out greater and stronger, more supreme than ever—a long service belting at a low price.

For 37 years GANDY has been proving to an increasing number of users that it will do the work as well or better than either leather or rubber belting, at about one-third the cost of leather and for very much less than rubber belting.

Gandy Stitched Cotton Duck Belting

You users who are asking for oil-proof, dust-proof, and virtually wear-proof service, can find it right in GANDY, and forget the rising cost of leather belting and rubber belting, just as thousands of others have done.

Try GANDY. It's worth your while. It gives maximum service and satisfaction.

The Gandy Belting Company, 732 West Pratt Street, Baltimore, Md.

New York Office—36 Warren Street

Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

HERAEUS Le Chatelier PYROMETER

"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular coordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermocouples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

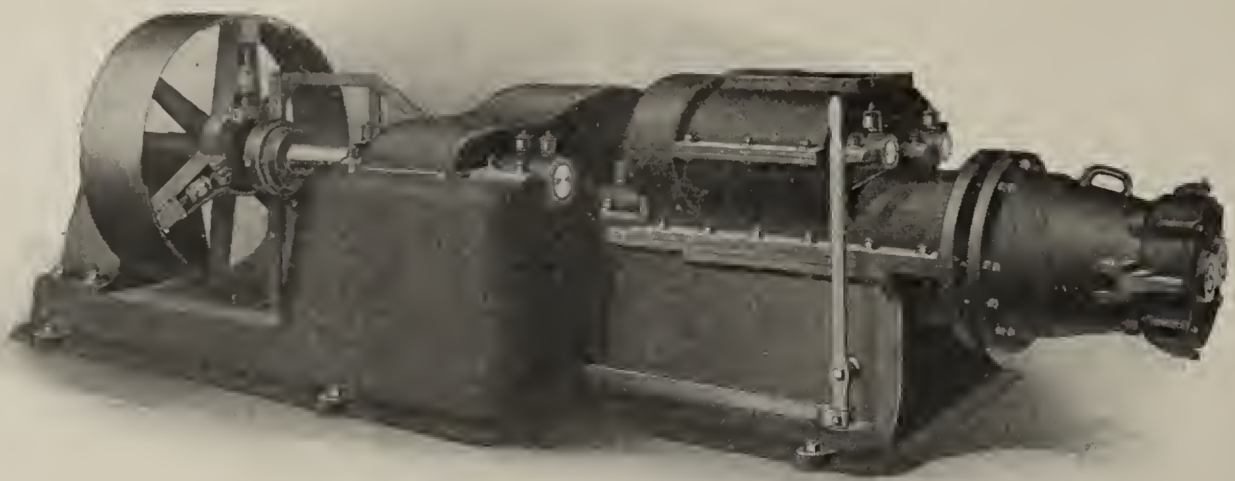
We Supply Pyrometer Installations

"MADE FOR YOU" not "MADE TO DO"

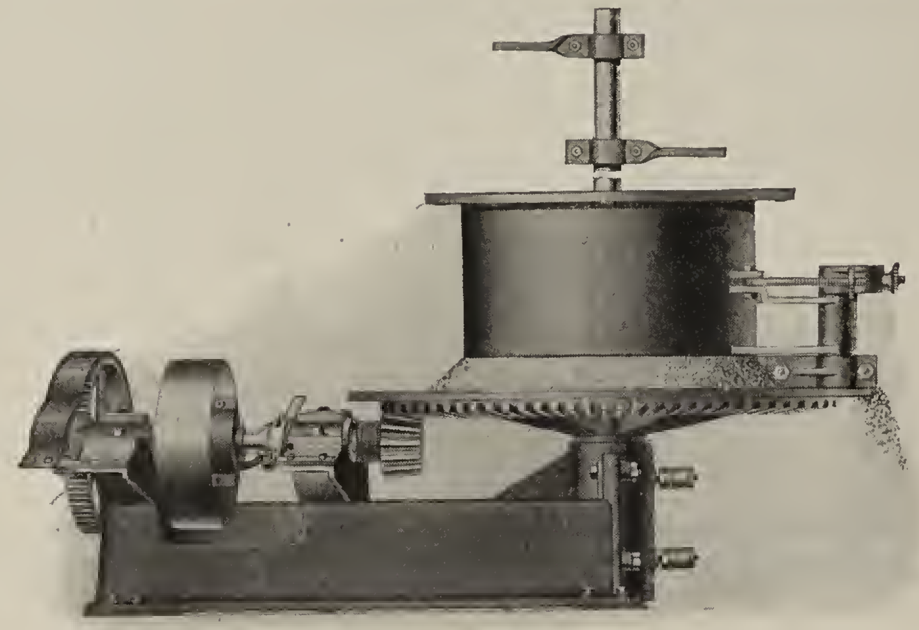
Let Us Figure on Your Requirements

CHARLES ENGELHARD

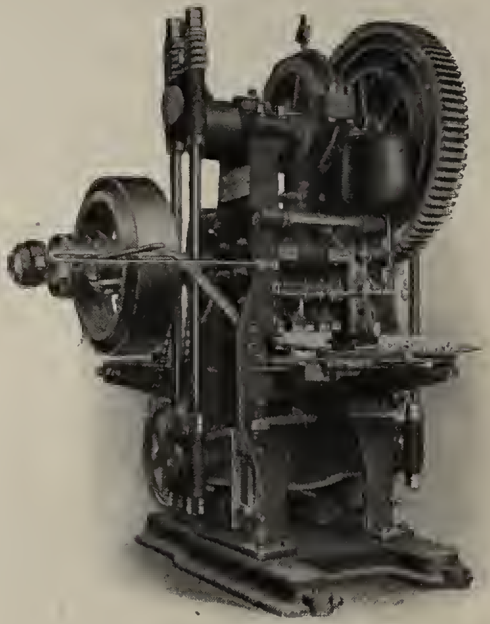
30 Church Street
NEW YORK



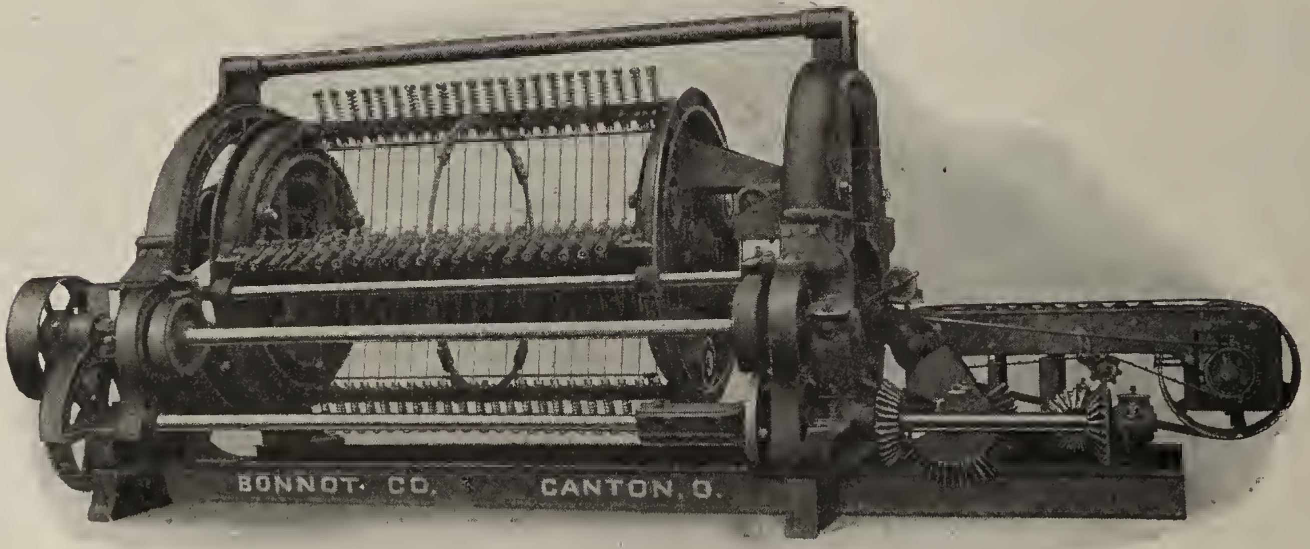
NO. 17 HOLLOW-WARE MACHINE, capacity 100-125 tons per day.



CLAY FEEDER



BONNOT REPRESS



ROTARY AUTOMATIC CUTTING TABLE

THE BONNOT COMPANY
CANTON, OHIO

909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

Evans Clay Mfg. Co., Uhrichsville, O. 4
Keller Brick Co., The, Cuyahoga Falls, O. 8

BRICK (COMMON)

Alliance Brick Co., Alliance, O. 8
Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Keller Brick Co., The, Cuyahoga Falls, O. 8
Metropolitan Paving Brick Co., Canton, O. 5

BRICK (FACE)

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Alliance Clay Pro. Co., Alliance, O. 5
American Enameled Brick & Tile Co., New York, N. Y. 8
Belden Brick Co., Canton, O. 8
Bradford Pressed Brick Co., Bradford, Pa. 7
Hocking Valley Pro. Co., Columbus, O. 7
Hydraulic Press Brick Co., St. Louis, Mo. 7
Ironclay Brick Co., Columbus, O. 7
Keller Brick Co., The, Cuyahoga Falls, O. 8
Kimbell Brick Co., S. S., Chicago, Ill. 6
Stark Brick Co., Canton, O. 8

BRICK (FIRE)

Alsey Brick & Tile Co., Alsey, Ill. 3
Brighton Fire Brick Co., New Brighton, Pa. 3
Chicago Retort & Fire Brick Co., Chicago, Ill. 4
Davis Fire Brick Co., Oak Hill, O. 3
Dover Fire Brick Co., Cleveland, O. 4
Evans Clay Mfg. Co., Uhrichsville, O. 4
Maurer & Son, H., New York City 3
Mexico Brick & Fire Clay Co., Mexico, Mo. 3
Jos. Soisson Fire Brick Co., Bolivar, Pa. 3
Southern Fire Brick & Clay Co., Chicago 3
St. Louis Vit. & Fire Brick Co., St. Louis, Mo. 3

BRICK OR BLOCK (PAVING)

Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Barr Clay Co., Streator, Ill. 4
Bessemer Limestone Co., Youngstown, O. 5
Big Four Clay Co., Canton, O. 6
Carlyle Paving Brick Co., Portsmouth, O. 6
Clinton Paving Brick Co., Clinton, Ind. 5
Danville Brick Co., Danville, Ill. 5
Deckman-Duty Brick Co., Cleveland, O. 5
Hamburg Vit. Brick Co., Philadelphia, Pa. 6
Harris Brick Co., Cincinnati, O. 6
Hocking Valley Brick Co., Columbus, O. 5
Metropolitan Paving Brick Co., Canton, O. 5
Murphysboro Paving Brick Co., Murphysboro, Ill. 6
Purington Paving Brick Co., Galesburg, Ill. 6
Shawmut Paving Brick Co., Shawmut, Pa. 6
Sterling Brick Co., Olean, N. Y. 4
Terre Haute Vit. Brick Co., Terre Haute, Ind. 4
United Brick Co., Conneaut, O. 5

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Quinn, John, Houtzdale, Pa. 3

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Bonner & Marshall Brick Co., Chicago, Ill. 7
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Globe Brick Co., East Liverpool, O. 8

FIRE PROOFING

Metropolitan Paving Brick Co., Canton, O. 5

RAGGLE BLOCKS

Kimbell Brick Co., S. S., Chicago, Ill. 8

REFRACTORIES

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Dover Fire Brick Co., Cleveland, Ohio 4
Evans Clay Mfg. Co., Uhrichsville, O. 4

SALT GLAZED BRICK

Stark Brick Co., Canton, O. 8

SEWER PIPE AND BRICK

Evans Clay Mfg. Co., Uhrichsville, O. 4

TILE (DRAIN)

Evans Clay Mfg. Co., Uhrichsville, O. 4

TILE (FLOOR)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 7

TILE (PROMENADE)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 7

TILE (ROOFING)

National Roofing Tile Co., Lima, O. 7

Trade Names Now in Use
on Face Brick and Other Clay Products

Consult this list before you adopt or create a name for your material and so avoid confusion and duplication. Many of the names have been registered in the U. S. Patent Office at Washington D. C., and your use of them constitutes an infringement.

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
MBCo—Martinsville (Ind.) Brick Co.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., Wellsville,O.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
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Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
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Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
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Tiffany—Thomas Moulding Brick Co., Chicago.
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Fire Brick for all types of kilns.
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If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

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Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

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High grade fire brick, cupola blocks
and fire clay.

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And other Fire Clay Products

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Manufacturers

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Made from shale
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None Are Better

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Also High-Grade Building and Face Brick.

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Manufacturers of

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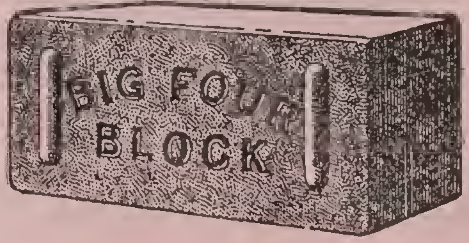
A Uniform Block which makes an Ideal Pavement



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The Standard of Quality in Brick

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FIRE-FLASHED BRICK
VITREOUS
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It washes its own face.

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has long been recognized as the standard by which all other Flashed brick are measured. For Composition, Richness of Color and Durability it is without a peer.

Standards, Romans, Normans in seven colors in Stock.

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We handle every kind of good facing brick.

(*Exclusive distributors of the famous Oriental Brick*)

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The Best Face Brick Made
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PORTAGE RUFFS

Sold in mixture. Dark reds blending with flashed brown make a wall of rich beauty.

We make common brick and hollow building tile also.

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Prices and Samples—as requested.

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Excel all other brick as to texture and beauty of coloring. The chromatic scale of colors runs through the beautiful Rug-texture faces of these brick, most of the brick showing **three** or **four** or **more** of the seven primary colors. One of the most popular sellers in America today.

Mr. Agent, this brick will get you business. Write for samples.

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Beautiful Rich Colors

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All Standard Colors and Sizes. Bright, Medium or Matt Finish. Agents in All Principal Cities.

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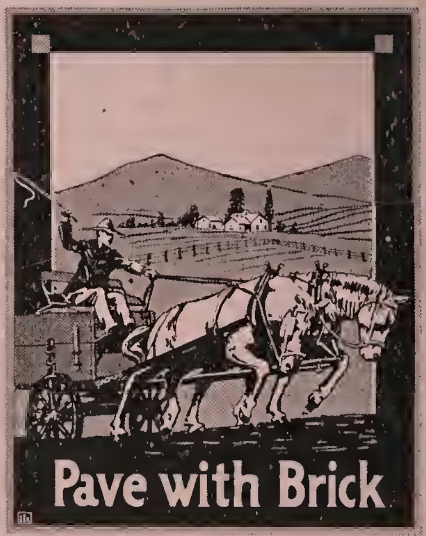

200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral —and that moral means better business for the men who make paving-brick.

How about using some of them—now?

Printed in THREE colors

Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

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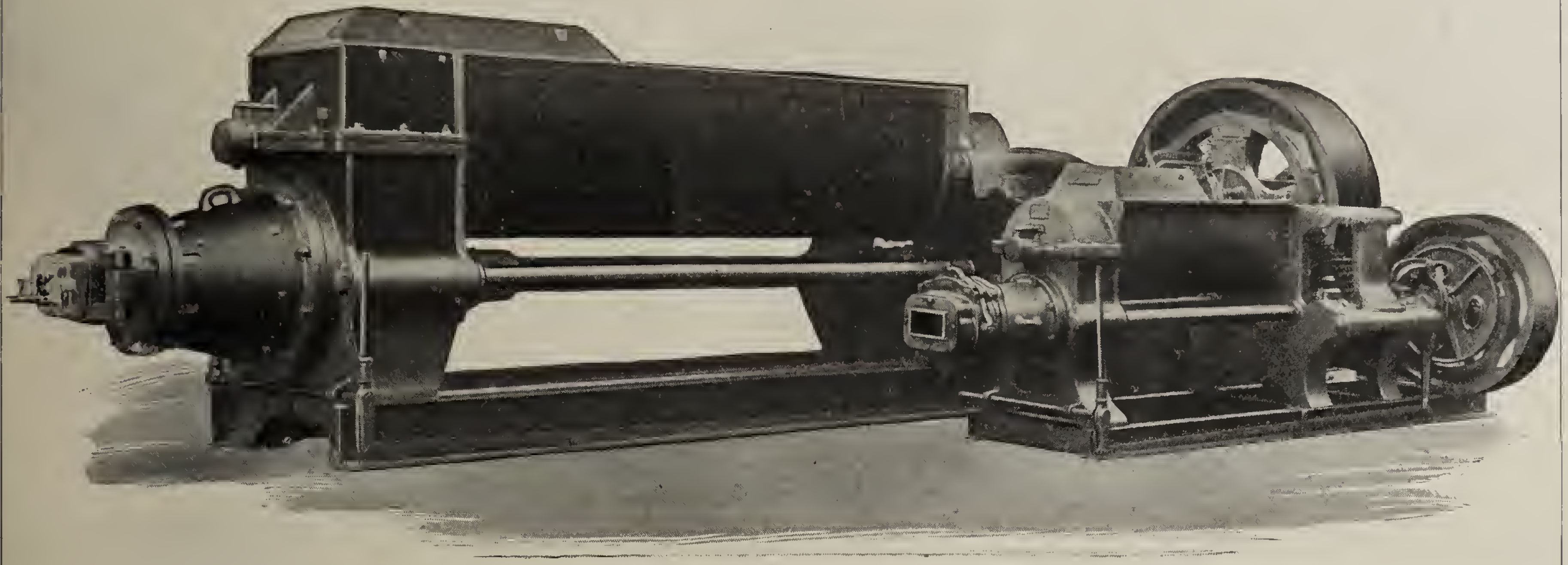

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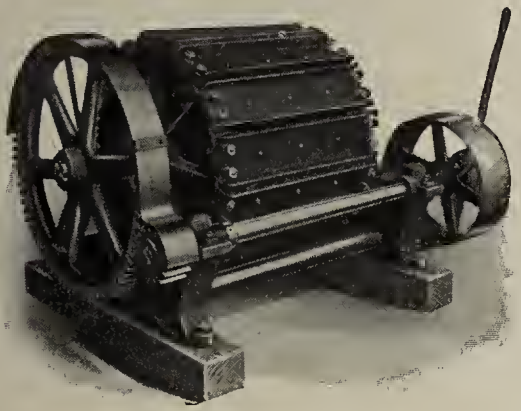
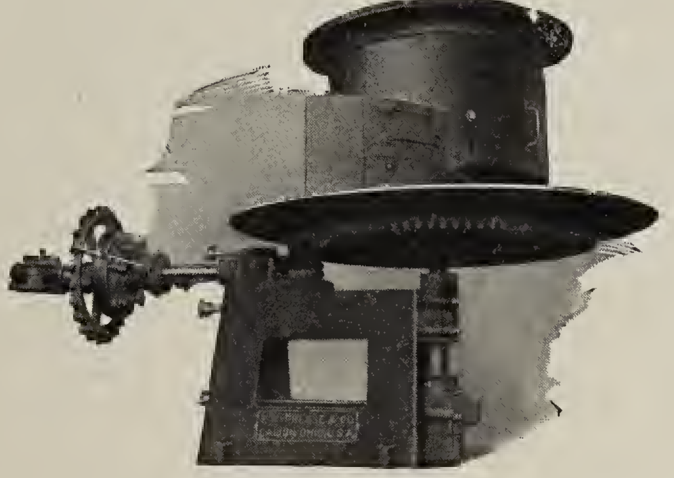


A dependable testing rattler. Complies fully with the National Paving Brick Manufacturers' Association specifications.



An improved automatic disc feeder with renewable wearing plate and renewable thrust bearing. Sprocket chain or belt drive.

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Dependable Machinery of Proven Efficiency

THE HOLLOW-TILE HOUSE

By FREDERICK SQUIRES

is a book every prospective home-builder should have. No amount of planning, however extensive, for that new home is complete without considering this new type of building material made from burned clay.

TABLE OF CONTENTS

INTRODUCTION

Chapter I	Tile-Making
Chapter II	Old World Stucco
Chapter III	About Construction
Chapter IV	Counting the Cost
Chapter V	The History of the Use of Hollow-Tile for Houses
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Chapter VII	Building the Other Man's House
Chapter VIII	Floor Building, Sand Moulds, The T-Beam
Chapter IX	Tile in Stucco Surfaces
Chapter X	Tricks of the Trade
Chapter XI	Tile and Concrete
Chapter XII	Texture and Scale
Chapter XIII	The Flat-Roofed House
Chapter XIV	An Interesting Experiment
Chapter XV	The House of Three Inventions

This book has 210 pages containing 215 illustrations and figures.

And even if you are living in a perfectly good house and don't intend to build for some time to come, GET THE BOOK ANYWAY, because you will find between its covers a story with just a touch of the romantic about it in the history of hollow tile and the hollow tile house with its European ancestry. It will make good reading for a quiet hour.

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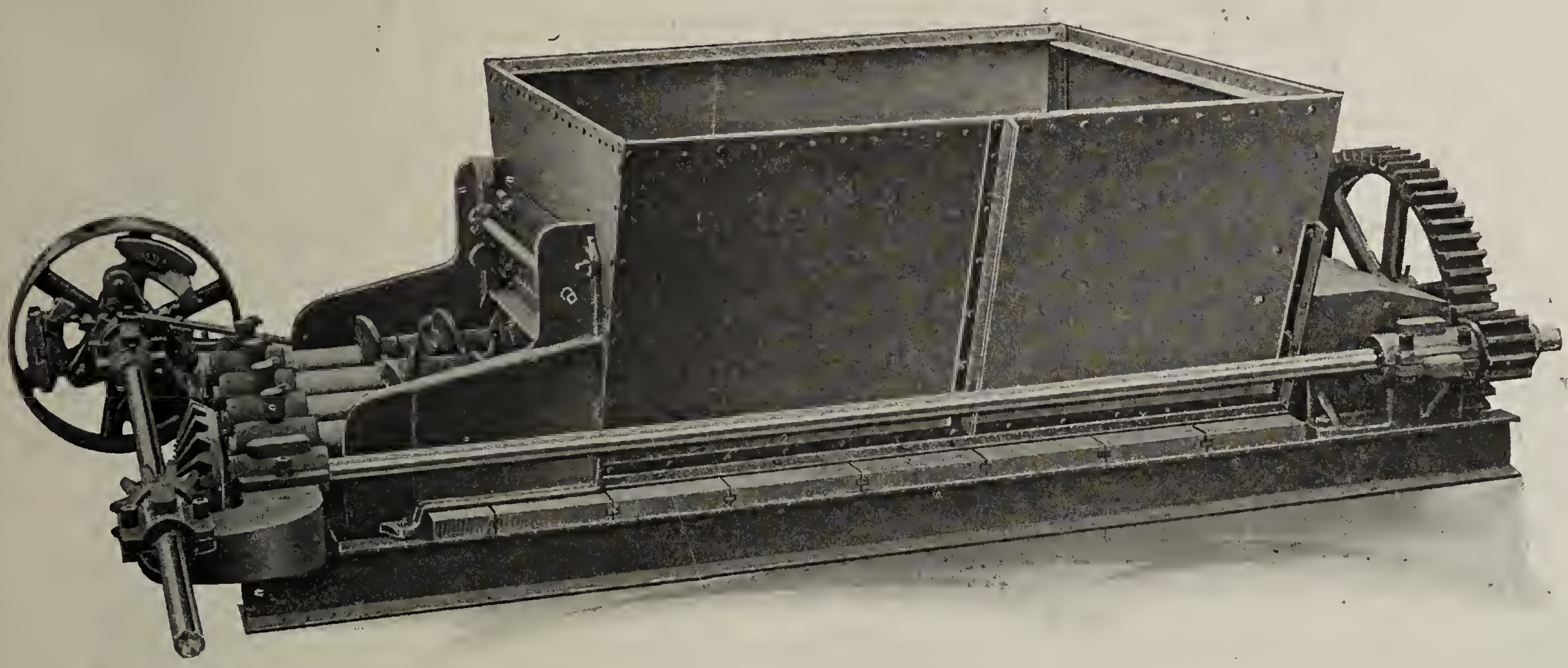
ONE Brick Machine may look as good as another, may be built first class mechanically and of ample weight, and still prove a disappointment.

It is the hidden effort and experience back of the Steele Machinery which give the results.

A proper relation of parts makes the difference between the finished and easy output of the Steele Machinery and the labored effort of improperly designed machinery.



The Steele Even Feeder is extra heavy—weighing 6500 pounds—at the same time it is so well balanced that it requires very little power. The connecting gears are spur type and run in oil.

These Feeders are giving good results where others failed.

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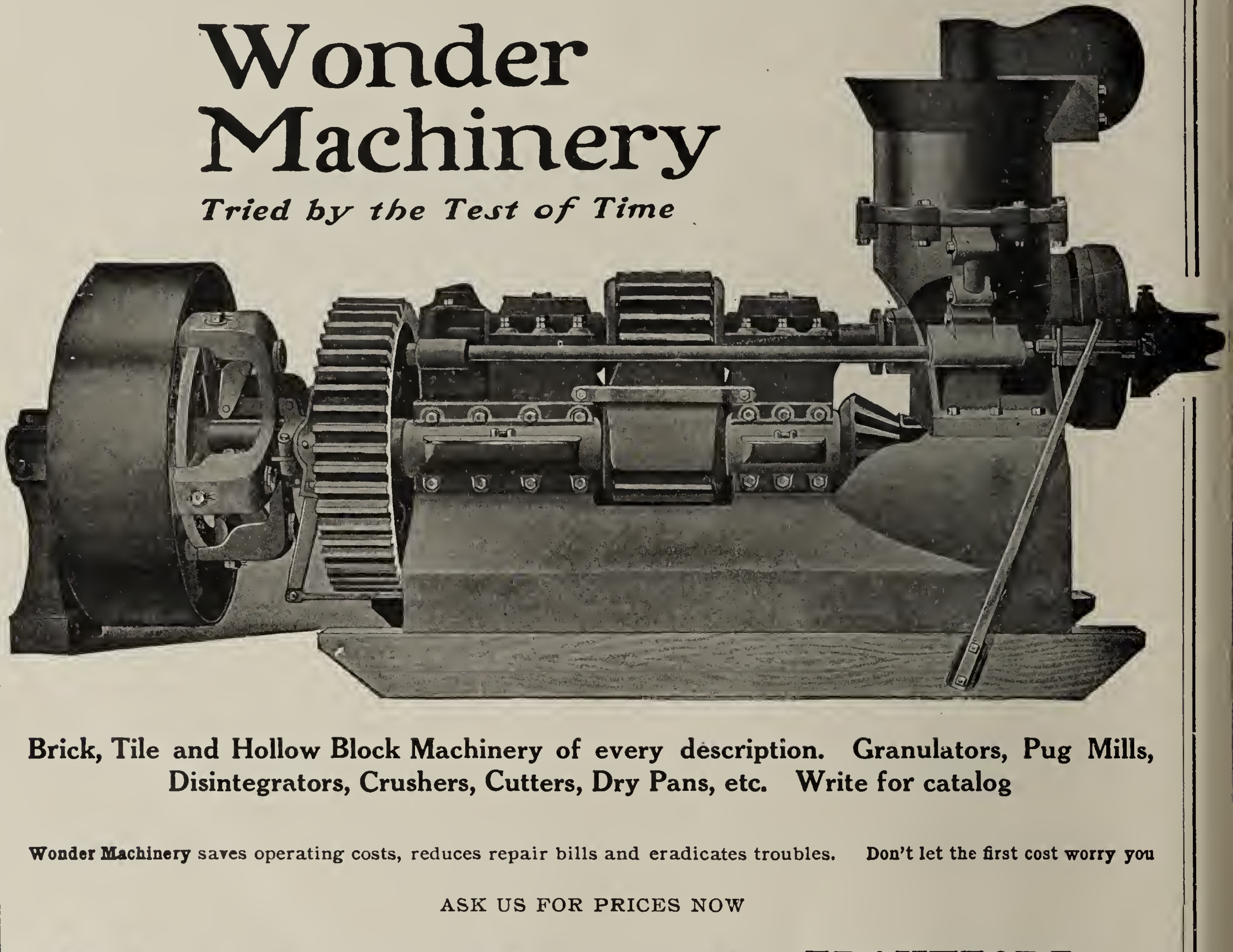
Wonder Machinery

Tried by the Test of Time



Brick, Tile and Hollow Block Machinery of every description. Granulators, Pug Mills, Disintegrators, Crushers, Cutters, Dry Pans, etc. Write for catalog

Wonder Machinery saves operating costs, reduces repair bills and eradicates troubles. **Don't let the first cost worry you**

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Sealed bids will be received by the undersigned up to noon July 14, 1915, for the property known as

RAGLAND BRICK COMPANY

located at RAGLAND, ALA., on main line of the Seaboard Air Line between Atlanta, Ga., and Birmingham, Ala., consisting of eighty (80) acres of land, more or less, buildings, machinery, kilns, etc., especially adapted for the manufacture of

PAVING BRICK

Unlimited quantity of SHALE on this property, and the freight rate on coal from mines to Ragland is 12 cents per ton.

This is an exceptional opportunity to secure one of the most improved and attractive PAVING BRICK PLANTS in the south.

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Trustee in Bankruptcy for the Ragland Brick Co.
P. O. Address: Macon, Ga.

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WANTED—Manufacturer of high grade face brick, with plant in Indiana, wants experienced face-brick salesman, one who is willing to travel. Send full particulars as to experience, etc., in first letter. Address: 7-E, care of "Brick and Clay Record." 7-1

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BUSINESS OPPORTUNITY—Successfully operated equipped architectural terra cotta plant, two kilns, large brick building, siding, engine; $30,000. Or will take active partner with $10,000. Albert Dresser, Agent, Burlington, New Jersey. 7-1

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EXPERT CLAYWORKER and plant manager open for engagement. Over 25 years' experience; can locate faults and remedy same, remodeling and reconstructing, machinery, kiln and drier adjusting; competent to plan and execute new construction, all kinds of brick, fireproofing, drain tile and sewer pipe. Am systematic in all my work, a stickler for daily cost system. Excellent references furnished. Address: 7-H, care of "Brick and Clay Record." 7-1

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacture of common and face brick, pavers and drain tile. Have used all kinds of clays and up and down-draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address: 7-C, care of "Brick and Clay Record." 7-2P

WANTED—Position as manager or superintendent of good brick plant. Employed now, good reason for wanting to change. References furnished. Address: 7-A, care of "Brick and Clay Record." 7-1

WANTED—Position as burner, experienced in firebrick, builders and pavers in down-draft and Haigh continuous kilns. Address: 7-B, care of "Brick and Clay Record." 7-1P

POSITION WANTED—By practical potter as manager or experimentalist. Can produce results in sanitary, general or art goods, enameled, fireclay or vitreous. Gilmore, 320 Hillside Ave., Newark, N. J. 6-2-1P

POSITION WANTED—As Superintendent, burner or shade for brick plant. Can furnish best of references. W. H. Blagg, 912 E. 10th St., Kansas City, Mo. 6-2-1P

POSITION WANTED—Superintendent at present engaged desires change; paving block, building brick and fireproofing. Excellent references as to ability and character. Any firm desiring high-class man address: 6-B, care of "Brick and Clay Record." 6-1-P

WANTED—Position as superintendent or salesman. Twenty-four years' successful practical experience handling large plants manufacturing sewer-pipe, conduits, firebrick, face brick and fireproofing. A-1 references. Address: 6-R, care of "Brick and Clay Record." 6-1-P

WANTED—Position as manager of building or paving brick plant by high-grade young man familiar with every phase of the work. Address: 6-F, care of "Brick and Clay Record." 6-1-P

WANTED—Position as assistant to manager of structural material business by ceramic engineer with ten years' experience. Address: 6-D, care of "Brick and Clay Record." 6-1-P

WANTED—Position as foreman or head burner, 20 years' experience, any kind of kiln; continuous my specialty. Address: 6-P, care of "Brick and Clay Record." 6-1.

WANTED—Position as manager or superintendent of clay plant manufacturing either vitrified paving brick, dry-pressed or partition and drain tile. Have had 20 years of practical experience in both the manufacturing and sales end of the business. Can design and erect complete plant, including down-draft, continuous and up-draft kilns, also direct and waste heat dryers; best of references given. Address: 7-N, care of "Brick and Clay Record." 7-1P

WANTED—Position as superintendent or yard foreman; 22 years. practical experience in brickmaking and clayworking. Expert burner, good mechanic; can lay out new plant or remodel old. Can produce maximum quality and quantity at minimum cost. Address: 7-F, care of "Brick and Clay Record." 7-1

WANTED—Position as superintendent, 20 years' experience in the manufacture of common brick, face brick, paving block, roofing tiles and hollow ware. Several years with German and American kiln builders, designing, building and operating continuous kilns and dryers. Expert burner, best references. Address: 5-BB, care of "Brick and Clay Record." 5-2-3P.

POSITION DESIRED—Practical and experienced superintendent, familiar with all clay and shale products, including fire, common, paving, building etc.; all processes. Address: 6-BA, care of "Brick and Clay Record." 6-2-1P

WANTED—Position as superintendent of brick plant. Experienced in fireclays, silica; building and paving brick. Employed, but desire change. Best references. Address: 6-BD, care of "Brick and Clay Record." 6-2-1P

FOR SALE—CLAYWORKING PLANTS.

FOR SALE OR LEASE—Brick plant, capacity now 40,000 With addition to dryer can be increased to 100,000 capacity. Fine, inexhaustible shale; good coal can be secured from mine one-quarter of mile from plant. Located on railroad and river. Machinery in first-class condition. Address: 6-BC, care of "Brick and Clay Record." 6-2-2

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Ohio brick plant, 15 acres clay, 25,000 capacity. One Stevenson 9 ft. dry pan and 8 ft. wet pan, Freese Union brick machine and automatic cutter. Style O Thew steam shovel, 100 dryer cars, Martin "A" and Arnold-Creager brick machines, Blake jaw crusher, Williams hammer crusher, Berg 4-mold dry press, corrugated conical roll crusher, 1 hand and 1 2-mold Raymond power represses, Martin pipe rack dryer, 32,000 capacity, all complete. Get our prices. C. H. Horton Co., Painesville, Ohio. 7-1

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FOR SALE—A favorably located brick plant and coal mine in eastern Ohio; excellent shale and fine coal. Capacity 25,000 brick per day. On leading railroad system and near market. Address: 5-BN, care of "Brick and Clay Record." 5-2-4P.

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FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant: tube mill, dryer, English rotary press. Will sell as a whole or any part of it. Write: Albert H. Mueckler, Trustee, Manistee, Mich.

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1 Equitable 3-inch regulator.
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FOR SALE—50 end dump cars, first-class, second-hand condition; capacity 3,000 lbs. These cars can be purchased cheap if bought at once. Address: 6-BE, care of "Brick and Clay Record." 6-2-1

FOR SALE—One Stevenson 9 ft. iron frame dry pan, latest model, and guaranteed in first-class condition, ready for immediate delivery. Address: J. S. Miller, Bolivar, Pa. 7-1

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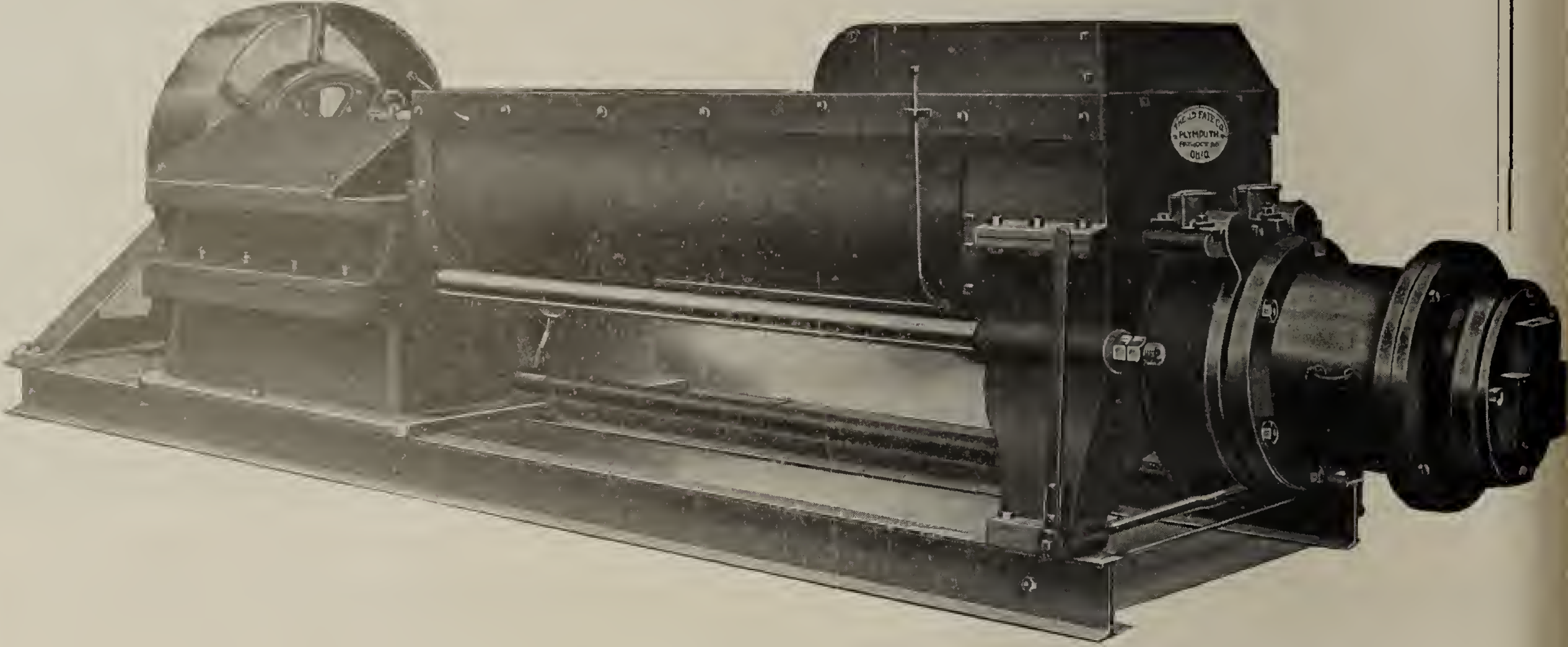
These factors enter into the product of the House of Fate.



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It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clay Working Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

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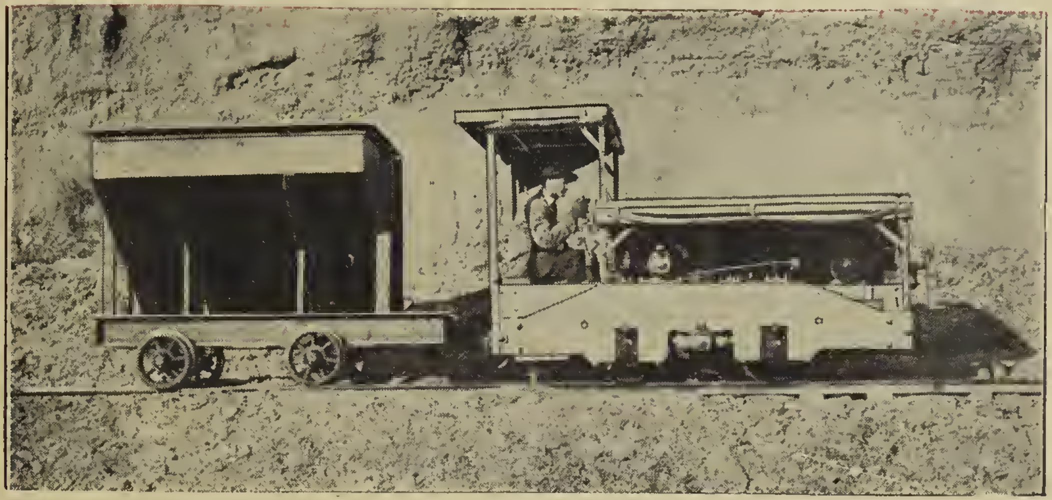

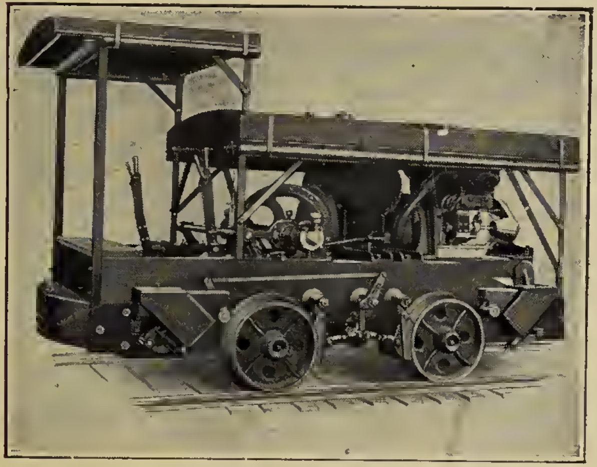

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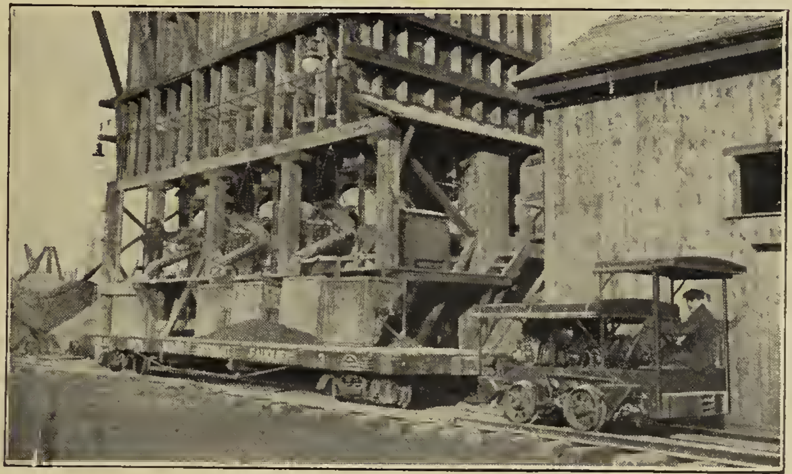

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Let us send you our descriptive catalog and tell you of an eight-year-old boy who runs one.

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You may not see how we can help you—but it will not obligate you in any way to ask us.

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Vol. XLVII, No. 2 Chicago July 20, 1915

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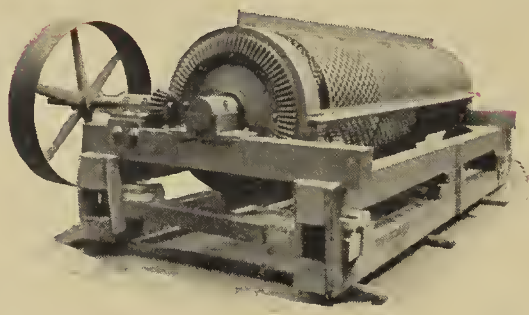

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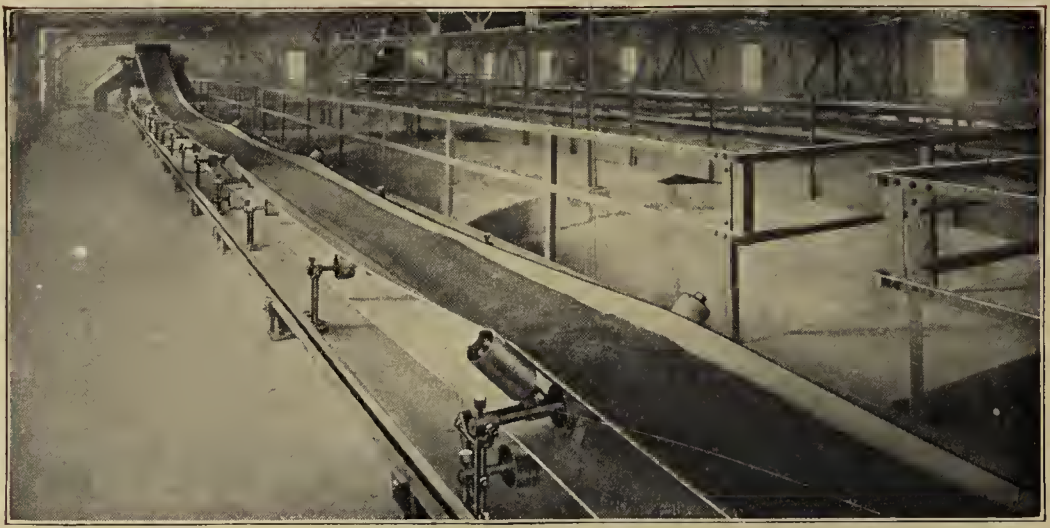
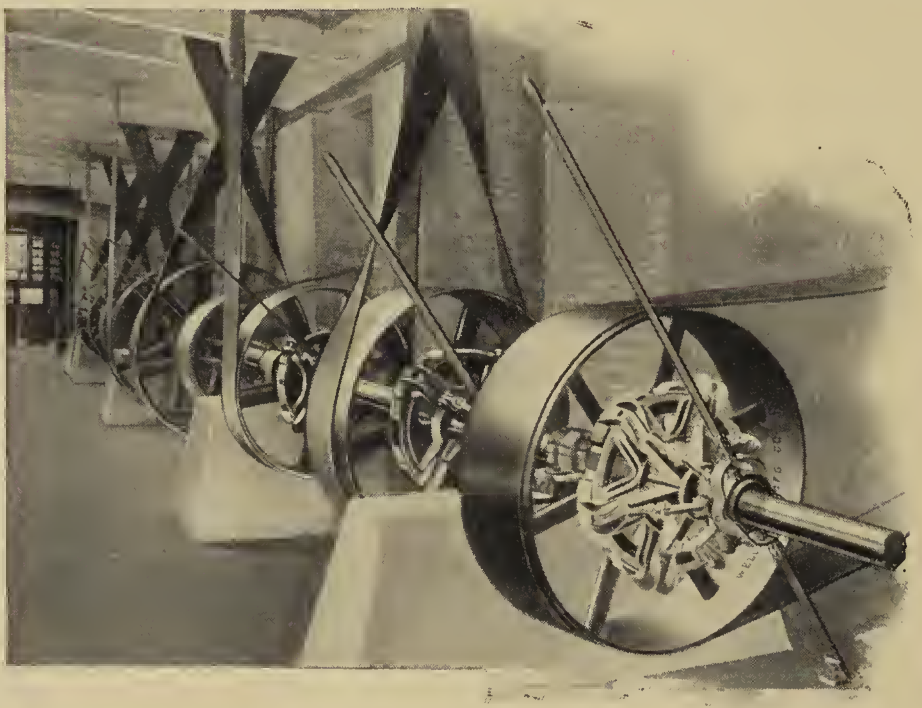


Belt Conveyors—Storage System.



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THAT BANDAGE A HANDICAP

Of course you would rather have Success—all of us would. But sometimes we think we are working toward Success and when we wake up we find ourselves headed in the other direction.

How often do we hear men say that they would have been successful if only they had had the right opportunities.

But is that really true?

It seems to be a habit for people to scoff—to ridicule anything different from that they have been accustomed to. That's the real reason those in the crowd are not more successful—their prejudice blinds them to Opportunities.

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Here's a photograph of a whale of a LEVIATHAN that has been carrying a whale of material for a whale of a time.

This is not intended as a fish story, even though the first Leviathan was an aquatic animal.

What we want to call your attention to is that this belt looks about 6 ft. wide at one end and 1 ft. at the other. Thus the eye deceives you, which illustrates how impossible it is to gauge a belt by appearances. When you order your next belt why not make it a

LEVIATHAN

and be sure you are right? An imitation Leviathan belt is no better than the material, construction, and the "know how," in the way of a manufacturing organization, that is back of it. Thirty-two years of belt making, striving to attain the ideal in belting for Clay Plants, makes it impossible for any competitor to produce LEVIATHAN'S equal.

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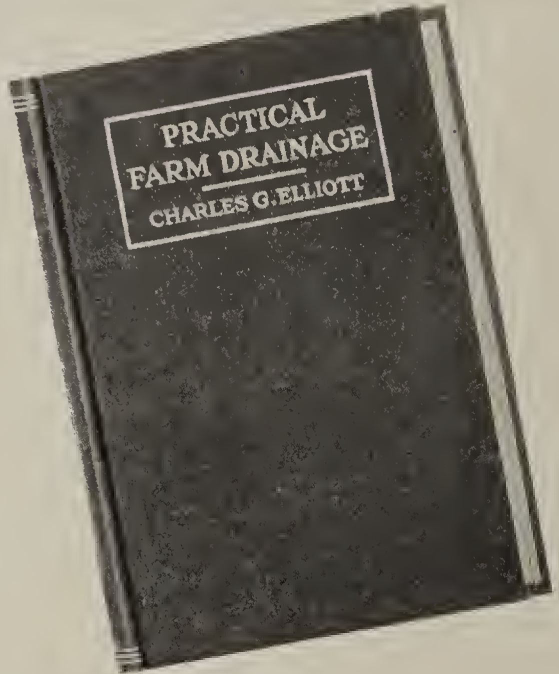

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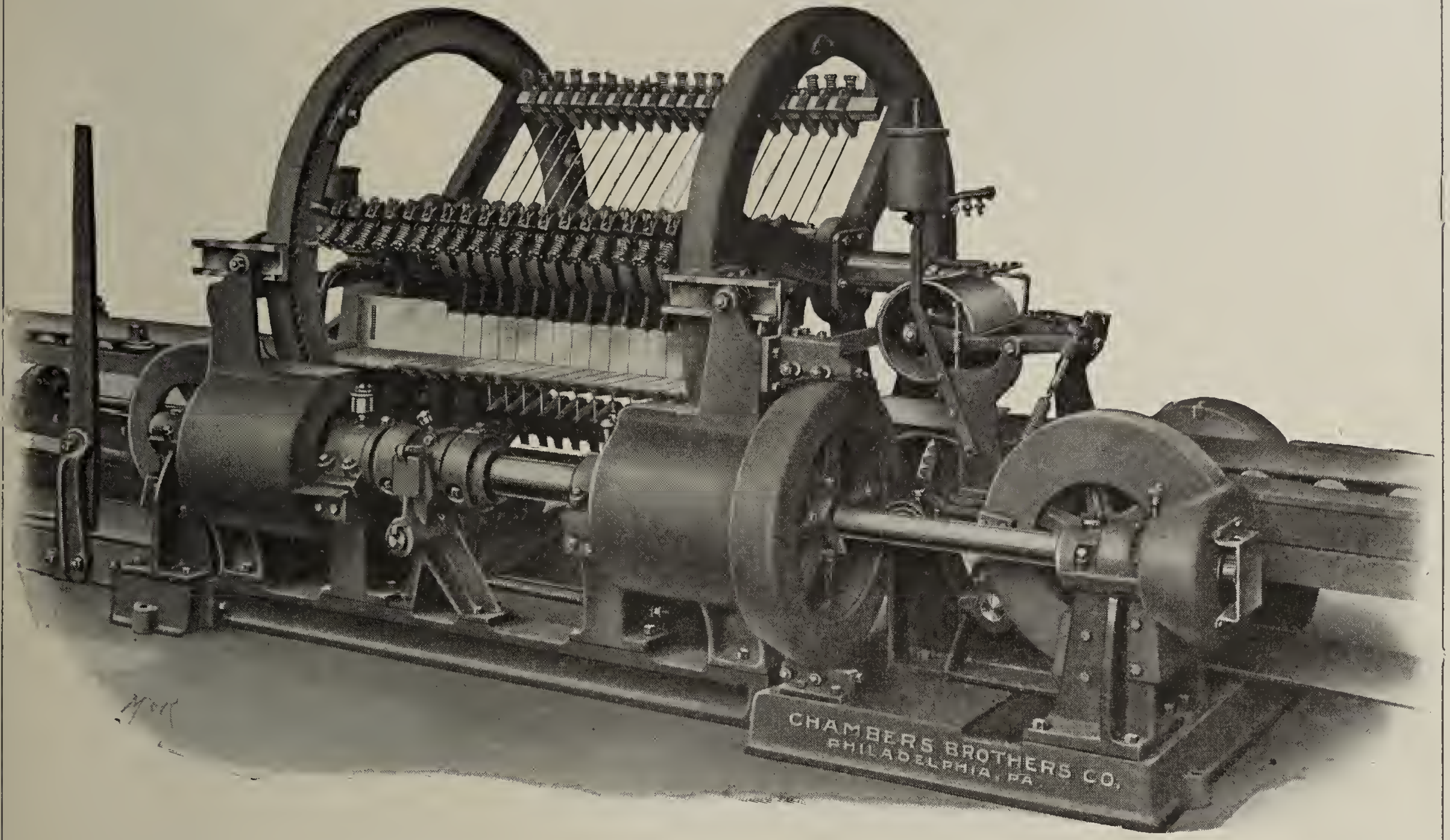
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A frictional driven Cutter for Brick or Block that starts promptly and stops at completion of its stroke without noise or shock.

Entirely free from knocker clutches or similar throw out devices.

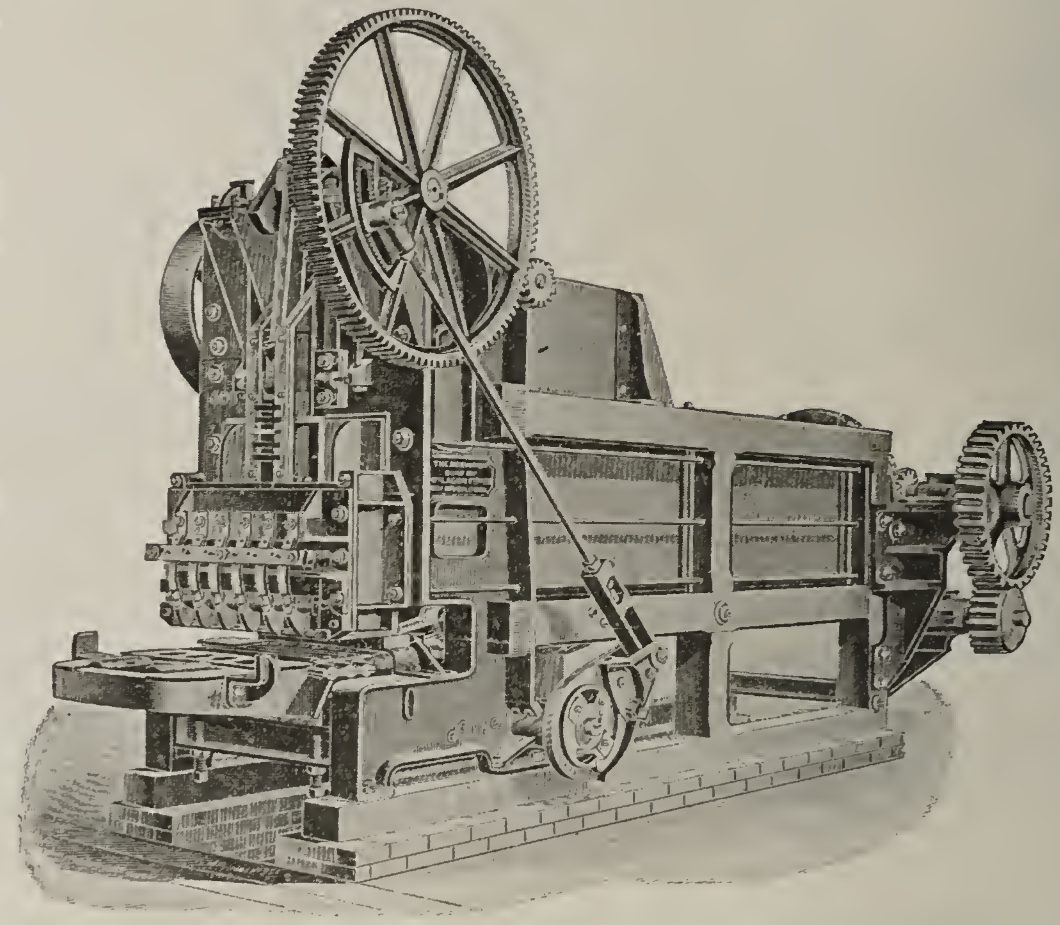
Driven through an enclosed cone friction of ample diameter and so arranged that the slight lateral movement employed to disengage the friction members upon completion of a cutting strike applies a brake to the entire periphery of the floating member. The result is highly satisfactory.

All revolving parts of the cutting mechanism, together with the platen, are suspended from a stationary steel shaft, the reel hub being upon roller bearings. There is no running machinery beneath the platen, no track or wheels for the support of a carriage, and no parts into which chips can be thrown by the cutting wires. Pressure by one finger will move the cutter endways in either direction.

Observe the enclosure of all gears, not only for their protection, but as safe-guarding against accidents.

Speed-regulating features meet the requirements of machine output and of tender clays. Adjustments to meet various conditions are made without stopping the machine, and are absolutely within control. The underside of clay bar is lubricated by a new method, using only so much lubricant as is required. No slop and no needless waste. A strong, durable, well-built Cutter.

The New Word in the Brick Plant
EFFICIENCY
Finds its Full Definition in



If You Believe
That Simplicity
of Construction
and Unusual
Strength mean
Long Effectual
Machine Life

Write Us

If You Believe
That Continuous
Good Results
Determine
Economic Values
Rather Than
First Cost

Write Us

THE NEW HAVEN NO. 2
HORIZONTAL BRICK MACHINE

Adapted to work any clay. ¶ Suitable for any yard that uses steam for power ¶ Makes solid brick with smooth faces and square edges

BUILT AND SOLD ON HONOR

*ASK
ANY
NEW HAVEN
USER*

THE FINAL TEST OF VALUE IS EARNING CAPACITY
THE FINAL TEST OF STRENGTH IS WEARING CAPACITY

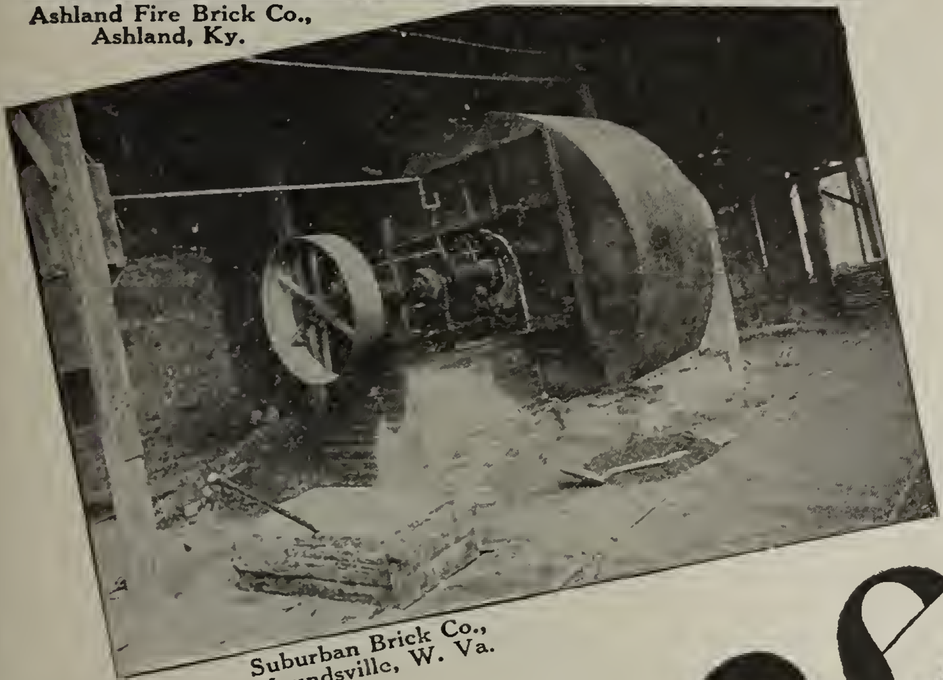
*ASK
ANY
NEW HAVEN
USER*

THE EASTERN MACHINERY COMPANY
NEW HAVEN, CONN.

Builders of the Strongest Soft-Clay Brick Machine in the World

Ashland Fire Brick Co.,
Ashland, Ky.

Brooklyn Brick Co., Cleveland, Ohio



Suburban Brick Co.,
Moundsville, W. Va.

Economy in Drying Clay Products

Sirocco

TRADE MARK.

Fan Systems use the heat from the cooling kilns to dry the bricks—that's one form of economy—**The other** is in the efficient way in which the Sirocco Fan handles this heat—the **low power requirements** for the amount of air handled—the low cost of upkeep of the Sirocco Fans due to its good mechanical construction.

Any fan will handle some air but the one that handles the **most** air for the **least** expense is the one **you** want and that's **"Sirocco."**

Our Brick Engineering Department will submit a lay-out applicable to your particular requirements—just drop us a line and we'll give you all details.

AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OEFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
San Francisco, Cal., 667 Mission St.
Dallas, Texas, South Western Life Ins. Bldg.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lempke Annex
Boston, Mass., 120 Milk St.
Columbus, O., 810 Harrison Bldg.

"SCANDINAVIA"

(SOLID WOVEN COTTON BELT)

THE MAIN DRIVE BELT

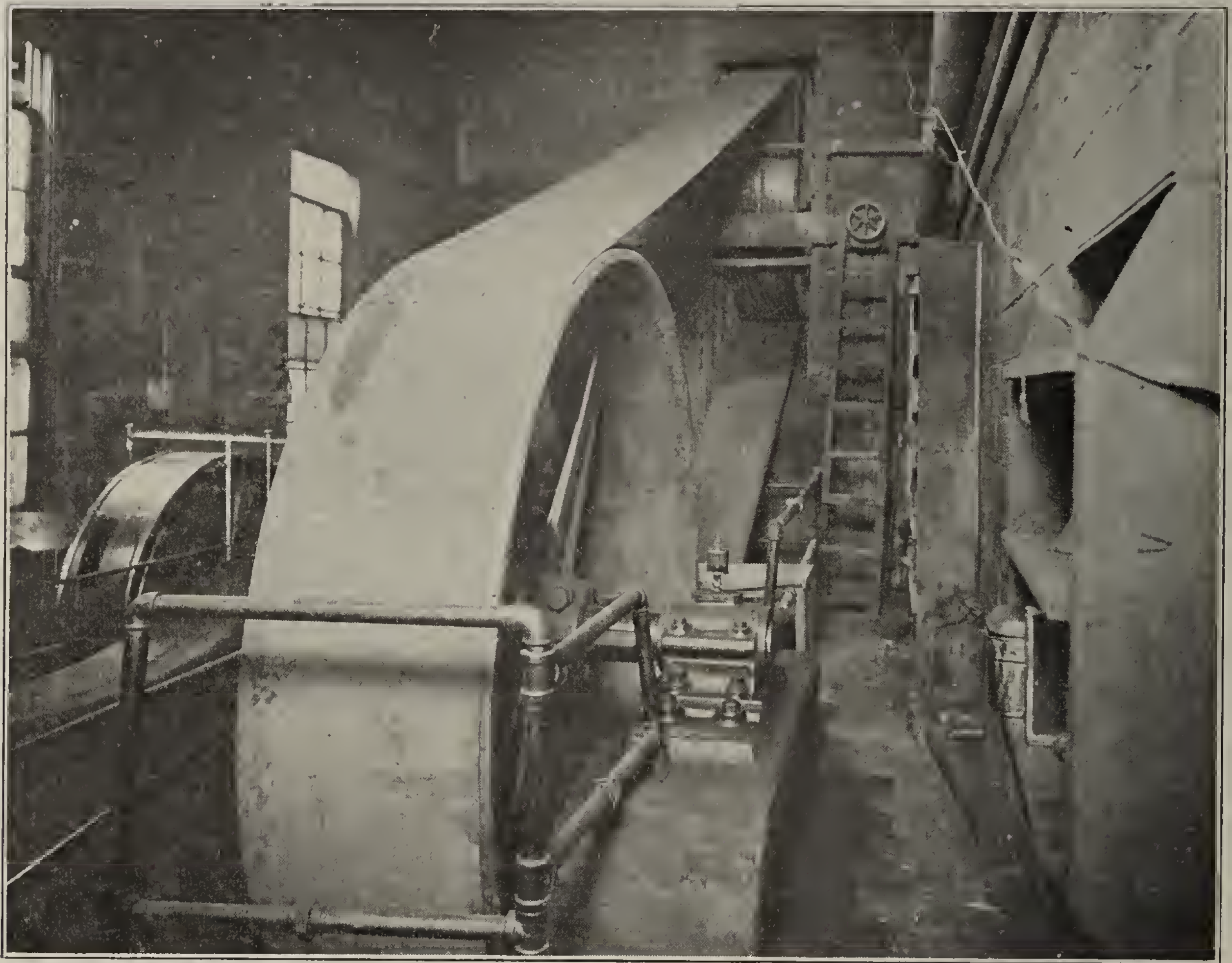


Illustration shows a 24 inch "SCANDINAVIA" extra stout belt on an engine drive in a brick plant. Belt speed 4600 feet per minute, transmitting 325 H. P., "SCANDINAVIA" giving better service than rubber, previously used.

Why "SCANDINAVIA" gives better service.
Because "SCANDINAVIA"—

- Is solid woven, no plies, no stitches, no laps.
- Has better gripping power.
- Drives more horse-power.
- Has greater strength.
- Is not affected by steam, water, oil or dust.
- Is absolutely uniform.

Every foot guaranteed.

Write our nearest branch for further particulars.

SCANDINAVIA BELTING COMPANY

106-108 Reade Street, NEW YORK

Atlanta Boston Buffalo Chicago Cleveland Easton, Pa. Pittsburgh Los Angeles San Francisco Portland, Ore.
CANADA — FEDERAL ENGINEERING CO., LTD. — TORONTO — MONTREAL

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

"NO MANUFACTURER can continue to exist who does not **sell** his goods." These words are quoted from a paper recently sent out by one of the greatest sales-directing geniuses in the field of clayworking. He goes on to say: "No matter how fine his product may be, it would lie on his hands, a dead weight, unless it was sold in the market.

"Production—Distribution; Manufacturing—Selling, these are the inseparable halves of business, and so intimate is their mutual interaction that, like the Siamese twins, if you strike one, the other suffers."

Those branches of the clayworking industry that have developed their sales-efficiency are the branches that are prosperous. Do not forget that the potters are brothers-in-clay to the men who make drain-tile. Go to East Liverpool, or Grafton and see the extent of the potteries and the **returns they are bringing on the immense capital that is invested.**

One firm of face-brick dealers who started in business twenty years ago with what was practically a nominal capital is rated $125,000 to $200,000 with "High" credit in Dun. That firm has sales-efficiency.

Paving-brick has enjoyed a greater prosperity, during the past three years, than any other line of brickmaking. Does the thought come to you that the paving-brick manufacturers, through their associations, **have** a certain sales-efficiency that other brickmakers lack?

The same acid-test, applied to every line of burned clay products, gives the same result; where there is sales-efficiency, there is profit. Where sales are made to depend upon "good" or "bad" years—this being dependent, in turn, upon the general financial or weather conditions of the country—the "good" years are fewer in number and much less pronounced than the "bad" years.

The manufacturer of clay products who is not a good salesman will do well to give some good salesman an interest in the business.

If he cannot find a good salesman who will accept stock in his concern, he had better take him on, anyway, and pay him a salary. Later, after the salesman has developed the business, he may be glad to take the manufacturer in, as **his** partner.

Elbert Hubbard said (blaming the sentiment on Emerson—which was unjust) something about its only being necessary for a man to make a highly improved mouse-trap and then sit home in a hut in the woods. The idea was, that word of the efficient rodent-confining methods of that man's brain would come to the world without any effort on his part and then—the world would come to him.

There are men who do just that sort of thing and they stay in their hut in the woods until the Sheriff finds them with a dispossess warrant.

The man who puts as much time into the perfection of his sales distribution as he does into his manufacturing problems, and who does not believe that either will take care of itself, is the man who is among those present when the Captains of the Industry are called.

Sales Efficiency Demands Service

Service is the key-note of business success. It follows and supports proper sales distribution. The man who creates a demand for his product through direct salesmanship or advertising and then discourages that demand by failing to supply it promptly, wastes his money and ruins his reputation.

The plant that is compelled to constantly resort to the practise of substitution—of confessing its inability to ship what has been ordered, and offers something that is "almost the same"—finds itself figuring losses instead of gains when the yearly balance is taken.

The Editor's Corner

The man who has gone through the experience of buying, which often includes careful selection, **may** take what is offered instead of what was sold, because he is in a tight corner and needs the material. But he is apt to remember the incident when he is again in the market, and make his former disappointment the basis of a merciless bargaining.

It is unfair to the buyer to make him dependent upon the uncertain results of your burning. The fact that a "kiln has gone wrong" should not be accepted as an excuse for non-delivery. A promise to ship on a certain day should be as binding as a promissory note.

A dealer who has sold a certain face-brick and expended the time and money necessary to turn a prospect into an order should not be expected to sell the same order twice, which he is compelled to do if the brick he sells are not ready for shipment at the time agreed upon.

Efficient sales distribution should be supplemented with the ability to take care of the orders created by its efficiency.

Drain Tile Posterette Coming!

A few weeks since, Chicago decided to do some community advertising. The "I Will" city looked around for the best way to reach several millions of people and tell them that Chicago was a good place to consider when they made up their vacation program—that the City-by-Lake-Michigan was an ideal summer resort.

After a conference in which some of the best advertising men in the country were consulted, the choice fell on a series of posterettes, and arrangements were made whereby hundreds of business men have made it their purpose to affix one of these bright colored little stamps to every piece of first class mail matter and express packages that leave their offices.

It is estimated that the use of these posterettes will bring an untold number of dollars to Chicago before the snow flies in the fall.

Which brings to mind the fact that at least two branches of the clay product industry are using a similar advertising proposition, in the "Build with Brick" and "Pave with Brick" posterettes supplied through this magazine. More than 200,000 of the former have been distributed and it is expected that fully as many of the latter will be used in the next few months.

The third posterette advertising burned clay is in preparation. It will have drain-tile for its subject, and will be ready (if nothing happens) for announcement in the next issue of this journal.

Have You Mailed Your Ballot?

No better indication of the spirit of co-operation that exists in the clayworking industry can be found than in the ready response that has followed the publication of the "Australian Ballot" for readers of this magazine, in the present issue and the three that have preceded it. Through it "Brick and Clay Record" has received many valuable suggestions which will help it in its endeavor to be the best specialized journal in America.

Opinions have varied as to the value of various departments, but in the main these have been sufficiently one in thought to indicate a course that will be the stronger for the advice that has come to us from our readers.

If you have delayed sending in your opinion, we trust you will turn to the page that contains the ballot in this issue, and show us that you, too, are interested in **making this magazine an institution,** rather than merely a publication.

Foreign Clay Substitutes Needed

The German government has forbidden the export of clay to this country and some American manufacturers of burned clay wares are facing the possibility of a complete shut-down. It will, therefore, be a patriotic as well as an economic measure, if any of our readers, who find themselves in the position of the men who are making crucibles, will write this magazine, telling of their needs.

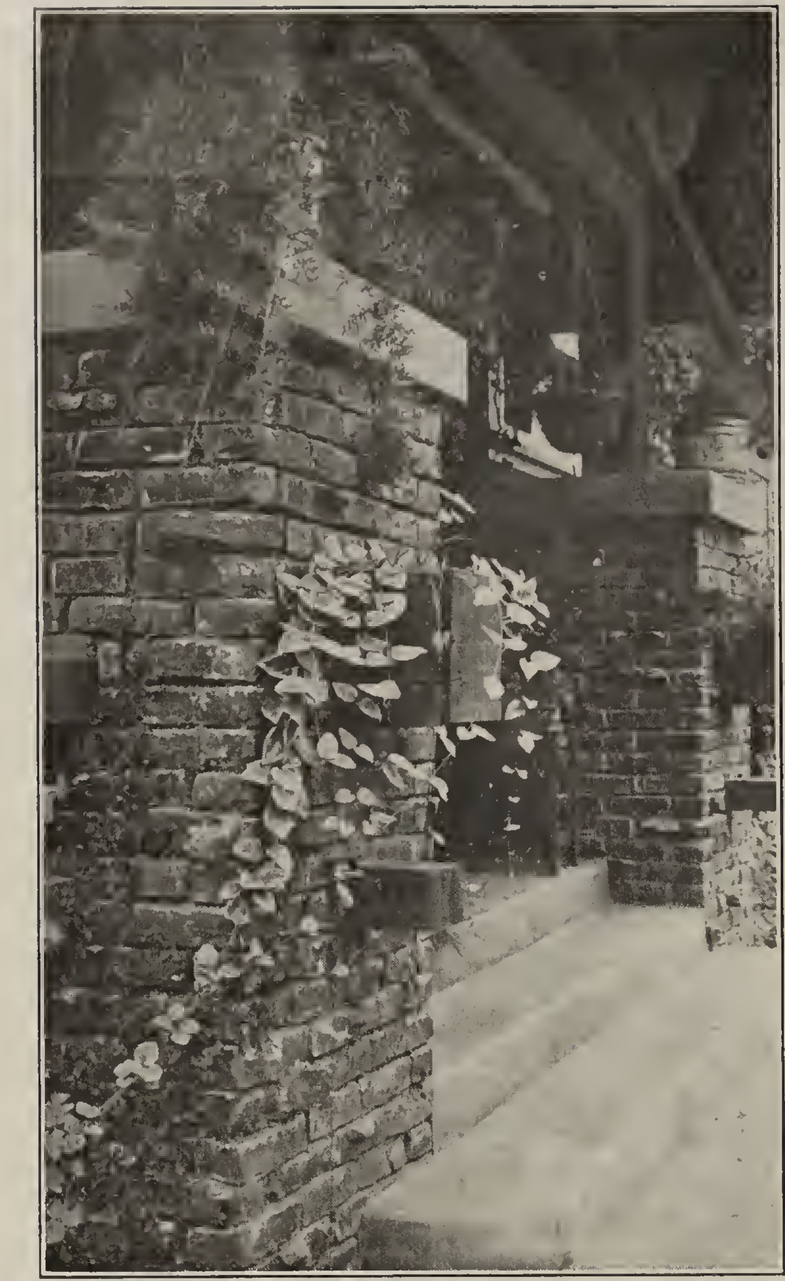
And if any of our readers know of a clay suitable for the purposes mentioned, and will notify this office without delay, it may serve a double purpose—that of keeping an American plant going, and of developing a new industry in the way of a raw material.

In the meantime, has any one of our readers ever seen a clay mined in America, that compares with the clay formerly imported from Germany and used in the production of glass-working apparatus?

Using Brick With Growing Shrubbery

The Modest Dwelling and the Ornate Formal Garden Alike Find, in Brick, a Perfect Setting for Growing Vines

IN PUBLISHING these examples of the artistic use of brick, it is with the idea that brickmakers will see, in them, opportunities for the more intelligent use of their product, right in their home towns. The man who should know most about brick and its possibilities, is the man who makes it. Yet it is seldom, if ever, that one finds a brickmaker "doing things" with his brick that are nearly as effective as the features that are illustrated here.



Neither Words Nor a Black and White Picture Can Adequately Convey the Pleasing Effect To Be Had From the Use of Soft-Toned Brick and Green Trailing Vines and Shrubbery

BRICK LENDS ITSELF to nearly every kind of architecture and almost as many kinds of building construction. Even where the habit of building with wood has grown with the years rather than decreased, brick can be and is used for ornamentation and, in a great many cases, as a part—if only a small part—of the construction. This is noted in two of the pictures which accompany this article and in which brick piers, supporting a porch roof, are made to serve a double purpose—that of construction and of ornamentation in that they are, in themselves, large flower boxes.

An appreciation of the beauty of brickwork is quickly followed by the suggestion that the soft appearing surfaces blend with the greens of clinging vines and growing plants. The following of this suggestion has always led to the successful combination of structural material and "live" ornament.

The two illustrations mentioned are of brickwork done in Tropico, Calif., and the style of the building is typical of the advance thought in building which is so noticeable on the Pacific Coast. The other, and larger illustration bears the impression of Eastern thought, the enclosed garden being within a short distance of the Atlantic. Here it will be noticed, straight lines and panel effects dominate the brickwork, the only attempt at ornament being the use of the Dutch cross bond and the stone tops with classic cap-pieces.

In this work the sensational note is struck in the broad brick pavement which, as will be seen, is laid as a half circle with a triple border, made up of bonded segment arches, the field being laid in herringbone-bond.

Here again it will be seen that the close crowding

Although This House Is Largely Built of Wood, the Brickwork Is the Most Attractive Feature. Here a Vine Is Throwing Its Clinging Mantle Over the Rough Surface of a Rich-Toned Brick

Like the Dais of a Throne, This Built-with-Brick Approach Is an Entrance to Kingly Beauty and Decorative Royalty. Touched with the Magic Hand of the Landscape Gardener the Various Colors of the Brick Blend with the Greens of Growing Plants and Bright-Hued Blossoms into a Picture of Rare Beauty

shrubbery is made to accent the effectiveness of the brickwork and the rather sparse ivy gives a promise of eventual richness.

The landscape gardeners of the East have a more difficult problem in combining their brickwork with plants, shrubs and vines, than have their brother artists who work in the less rigorous climate of California and have at hand an almost tropical plant life.

Perhaps it is for this reason that shrubbery has not been used so extensively in the East for the purpose mentioned as it has been in localities where nature is more lavish in her gifts.

At any rate, every home builder and for that matter every builder of any kind of structure, would do well to give consideration to the effect that is obtained by the expert combination of green growing shrubs or vines and the deep tones that have made so marked an advance in the brick architecture of America.

Before leaving this subject, however, a few words regarding the detail construction of the brickwork and flower boxes appearing in the illustrations on the opposite page, might not come amiss. In the lower illustration is shown a brick pier supporting a flower box. This pier is about four feet in width at the base and tapers gradually to the top where it is a little more than two and a half feet square. A stone cap rests upon the top of the pier and it is on this cap that the flower box is located. The box itself is very plain, being made of one inch boards, ten inches wide. It is built around a heavy wooden post which serves as a support for the porch roof. Between the box sides and this post, earth is placed, in which ferns have been planted, which now hang gracefully over the sides of the box and of the brick pier, forming a pleasing contrast.

The illustration in the upper corner shows a clever way of hanging the flower box on the side of a brick pillar. The beams which constitute the railings of this porch are carried right through the brickwork and it is to the end of one of these beams that the flower box is fastened. The box is made of short pieces of one inch material and is about ten inches high. After the earth was placed in this box a vine was planted which may now be seen hanging down over the brickwork, its yellow striped leaves presenting a striking contrast to the dark brickwork.

Another method of arranging flower boxes may be had by using the brick supports of the porch roof for this purpose. In one instance a pier has been built which measures four feet square at the bottom, this thickness extending to a height of about four feet. Rising out of the center of this mass of brickwork another pier was constructed about sixteen inches square which was continued up to the roof. Brick were then built up along the edge of the four foot base of the pier, making a flower box a foot deep and a foot wide. When filled with earth and planted with flowers and ferns of various kinds, this arrangement makes a very pretty picture.

One of the best features of these flower boxes and their decorative ability is that they are inexpensive.

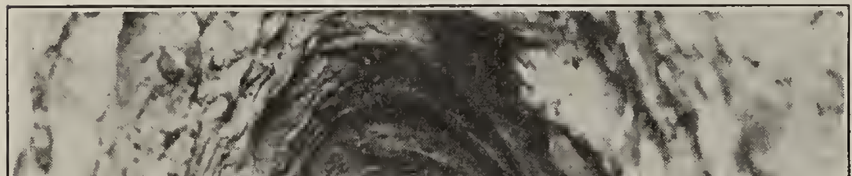
Digging a Subway to Build a Sewer

Novel Method Used by Minnesota Town in Building a Sewer Economically During Cold Weather

When the city of Virginia, Minn., a city of 15,000 population on the Mesaba Iron Range, decided to lay some 12-in. vitrified sewer-pipe at depths of from eight to twenty-seven feet during the winter months, the question of open trench or tunnel work had to be settled. Open trench work would have been very expensive, because of the necessity of thawing the ground first in addition to the large cost of deep trenching, but as no tunnel work had ever before been done on the Iron Range for sewer work, the question was debatable.

The city engineering department finally decided on doing the larger share of the work in tunnel, at the depths of from fifteen to twenty-seven feet. The fact that the available laborers had had considerable mining experience helped in deciding the question.

So successful was the work undertaken on this sewer, and so cheaply was it done, that a 36-in. vitrified pipe sewer was also built in a similar manner under a pavement with a covering of only eight feet.



City Engineer E. F. Johnson and Street Commissioner C. Christopherson, of Virginia, Minn., in Sewer Tunnel with Carbide Lamp. These Lamps Were Used Throughout the Entire Job to Furnish Light to the Men in the Tunnel

The 12-in. sewer first mentioned is a sub-main sanitary sewer for a newly built-up portion of the city. It is 1,732 ft. long, of which 1,100 ft. was built in tunnel. When the tunneling was first started shafts were sunk at intervals of 50 ft. and 100 ft., but these distances were not found to be the best, and a compromise was made on 75 ft. This distance proved very satisfactory. Manholes were placed at the street intersections, making them 466 ft. apart. This necessitated the building of five shafts between manholes.

These shafts were five feet in diameter and were dug out by one man with an ordinary shovel. The dirt was hoisted to the surface with the aid of an ordinary windlass operated by another man at the surface. When the shafts were dug down to the depth required by the grade of the sewer, digging was started along the line of the sewer. Only two shafts were completely open at any one time.

As the men dug ahead in the tunnel, the dirt was hauled back to the shaft and then hoisted to the top. The pipe laying was carried on practically simultaneously with the digging, as the dirt ahead of the pipe was thrown back on the pipe after a clear distance of about 25 ft. had been cleaned out to the required grade. Three men were used in a shift. One man dug ahead, with hand tools, one wheeled the dirt back in a small wheelbarrow either to the shaft or to fill in on the pipe already laid and the other worked at the windlass. The tunnel was only five feet high and two and one-half feet wide, but no timbering of any kind was used on account of the hardness of the material encountered, which made it safe for the men to work without the usual precautions of timbering.

The pipe laying was done in the method usual with open trench work. The start was made from the lower end of the sewer, but in order to hasten the work another crew was set at work coming down from the upper end. The pipe was lowered into the shaft by means of the windlass, with a hook at the end of the rope to hold the pipe. After being lowered, the pipe was carried to its place, and jointed to the pipe already laid with a neat cement joint. The dirt being taken out ahead in the tunnel was then used for back filling. Care was taken to see that the dirt was well packed around the sides of the pipe, so as to keep it in line.

The pipe used was the regular 12-in. salt-glazed vitrified pipe and though it was laid during the coldest months, no trouble has so far been experienced with it. Though passing through a mixture of hard clay and large boulders, the work was done at a cost of only $1.75 per lineal foot, a figure considerably lower than any for which a contractor would be willing to do the work. The rate of progress averaged about five feet per shift.

To keep the sewer in true alignment and to the true grade

One of the Streets Under Which the Twelve-Inch Sewer Was Laid, Showing the Shafts and Windlass at Seventy-five Foot Intervals. The White Sand Shown Has Been Taken from the Tunnel

line the city engineering department gave line and grade at frequent intervals on pieces of 2x4 placed horizontally across the upper side of the tunnel. The usual mining methods were used in transferring the line from the surface to the tunnel. The sewer line was first staked out on the surface and stakes placed for the shafts. After the windlasses were up two nails were placed, one on each side of the shaft, on the planks supporting the windlass, exactly on the line of the sewer, and plumb lines were then dropped from these nails into the shaft.

From these plumb lines the sewer line was run in the tunnel to the next shaft, by placing nails on line on the underside of the 2x4s already mentioned. From these nails the men could stretch a cord so as to get the true line, and in case of necessity could even work ahead a considerable distance. Grade for the sewer was given by marking the distance down from the underside of each 2x4 to the invert. So well did the men work to the lines and grades given that the work checked almost exactly when the two ends were brought together. A carbide light placed at one end of the sewer could be seen at the manhole at the other end, 1,732 ft. distant.

After the 12-in. sewer was completed the city had to put in some 36-in. vitrified pipe for storm water drainage. Part of the line had to pass under a pavement, and the tunnel idea was again used. Two shafts were dug out at a distance apart of 75 ft. so that no pavement would be disturbed. One of the shafts was made large enough so that a length of 36-in. pipe could be lowered into it. The tunnel was then dug just a little larger than the outside diameter of the bell of the pipe. It was completely dug out between the two shafts before the pipe laying was begun.

The pipe was lowered by means of a windlass at one shaft and then shoved along on planks in the tunnel. A hand-made device on the usual lever principle was used to help push the pipe lengths into place. A rope attached to the windlass at the other shaft was also used for the same purpose. The joints were made of neat cement.

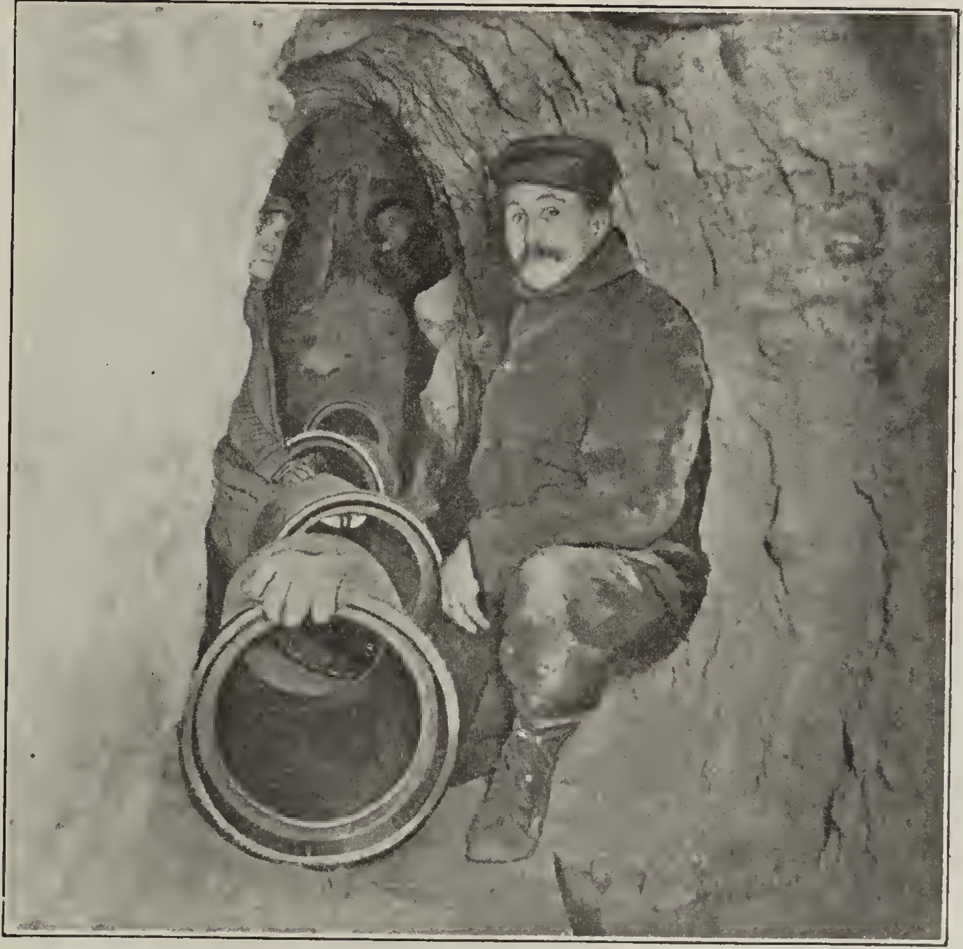
As in the case with the 12-in. pipe the cost of the 36-in. sewer was very much less than it could have been done by tearing up the pavement and digging in open trench. Though there was only a covering of eight feet from the top of the 36-in. tunnel to the surface of the pavement, no timbering was used in the tunnel. In both of the cases mentioned the city engineering department has been very much pleased with the results obtained.

The work was done under the immediate supervision of Street Commissioner C. Christopherson, while the plans and specifications were made by City Engineer E. F. Johnson.

Sewer-Pipe Plants to Combine

It has been learned recently that negotiations are under way for the purchase by the Chattanooga (Tenn.) Sewer Pipe and Fire Brick Company, of four large sewer pipe and brick plants in Georgia which are rated among the most extensive in the South. The plants in question are at Augusta, Rome, Columbus and Macon. The Bibb Sewer Pipe Company, whose plant is at Macon, is probably the largest in Georgia, being owned by W. J. Massee and others. The plant at Columbus is the smallest of the four. The Chattanooga company has its principal plant at Chickamauga, Ga., and also has plants in Tennessee. O. E. Deppen, manager of this company, has stated that a local syndicate was not planning to purchase the string of Georgia plants, but that negotiations were pending between his company and the owners of the Georgia plants. He said that the contracts had not as yet been closed. He further stated that the deal could be handled by his company through an increase in capital stock.

The output of the Georgia plants is sold to cities and corporations throughout the South.



Cross-Section of Tunnel, Showing Method of Laying Pipe. The Backfilling Gang Is at Work in the Background, Following Closely Upon the Men who are Laying the Pipe. The Absence of Timbering In This Tunnel is Particularly Noticeable

Let Us Tell You What Happened—

CHICAGO'S BUILDING STRIKE which has been in progress for three months and which has paralyzed building operations in the "I Will" city, has been settled to the satisfaction of all concerned, the carpenters, who were the prime movers in the tie-up, being granted an increase in wages from sixty-five to seventy cents an hour, extending over a period of three years. The settlement was in the nature of a compromise, the carpenters having originally asked for a sliding scale of seventy cents for the first year, seventy-two and a half for the second and seventy-five cents for the third. They also demanded that the consumption of lumber and millwork for Chicago buildings be restricted to that made or furnished by Chicago manufacturers. In the settlement it was decided that Chicago would be an open market for building materials and that the opportunity for furnishing lumber and millwork would not be restricted to local interests.

There is a feature, however, of this agreement between the carpenters and their employers which has national significance. The terms of peace had hardly been announced when plans for new building operations, the extent of which has hardly been seen in recent years, were made public, and it was announced that Chicago would see in the next five or six months a real building boom.

"Without making estimates in dollars" said Wm. Schlake, President of the Illinois Brick Company, "I will say that this is a grand boom after the tie-up caused by strikes. It is safe to say that it will run far and away into the millions but without actual information, I would not make an estimate. Prosperity is in the air again and we are going to do our share in carrying it out." Mr. Schlake also announced that his company has just secured an order for twenty-six million brick, to be used on a special assessment sewer job in Norwood Park, a surburb of Chicago.

Peace in the building conflict came after an all-night session between a committee representing the carpenters and one representing the contractors. Tactics similar to those employed by Mayor Thompson in settlement of the recent street car men's strike worked very well with the carpenters. After three hours of arguing, in which forty men took part and in which everyone was talking at once, Thomas Carey, President of the Carey Brick Company, got up and said: "Gentlemen, if we are going to do any business here we've got to have smaller committees. We *are* going to do business. Not one of us is going to leave this place until we get a settlement. Don't make any mistake about it. Nobody gets out until we get an agreement if it takes all night or all day tomorrow or all the next day for that matter." This plain talk had an instant effect upon those present. Subcommittees of five from each side were selected and these committees retired to a private room, the door to which was bolted, settlement finally being arrived at after a conference lasting more than ten hours.

New York Adopts New Building Code

The Board of Aldermen of the City of New York recently passed three sections of the new building code which is being drawn up by Building Superintendent Rudolph Miller, to take the place of former ordinances.

The three sections that have already been passed relate to masonry, reinforced concrete and fireproof construction. They permit the use of brick, stone, concrete, hollow tile or a combination of these materials as specified. The interior of buildings more than 150 feet high must be made of material in itself non-inflammable, or of wood so treated that it cannot burn. Dwelling houses not more than forty feet high may be built of hollow tile, which was prohibited under the old ordinance. It is expected that the new regulations will encourage the erection of this type of home in the suburbs, especially.

N. B. M. A. to Attend Exposition

A mid-summer meeting at the Panama-Pacific International Exposition, of the members of the National Brick Manufacturers' Association, has been announced to take place the last week in August. This meeting will not be in the form of a convention but is a social gathering of those who can make it convenient to visit the Exposition at the time above mentioned. In honor of the event, the officials of the Exposition have set aside August 26th as "National Brick Manufacturers' Association Day" and will prepare a program for the occasion that will make it one of great interest.

This meeting will also make it possible for many clayworkers to view the model brick residence which has been erected through the efforts of the Panama-Pacific Clay Products Association, and which is located on the fair grounds.

Frank W. Darling Resigns as Clayworker

It is with sincere regret that those engaged in the manufacture of hollow clay building tile learn of the decision of Frank W. Darling to sever his connections with the Clay Product Company and the clayworking industry in general. Mr. Darling has been one of the most active supporters of the young and growing Hollow Building Tile Manufacturers' Association of America, being a member of its executive committee and chairman of the committee on business ethics and on publicity. His efforts have been characterized by broadness of vision, good judgment and rare ability. At the Indianapolis meeting of the hollow tile association, held recently, a letter of appreciation for his services in the work of that organization was proposed, drawn up and passed by those present.

Mr. Darling will leave for New York, which will be his future home, about August 1st, where he will engage in a new line of endeavor.

Face Brick Men Hold Mid-Summer Meeting

Despite the hot weather and the demands of a busy plant, a number of face brick manufacturers managed to slip away for the two-day mid-summer meeting of the American Face Brick Association held in the Hotel Statler at Detroit, Mich., Thursday and Friday, July 15 and 16. The wisdom of selecting Detroit as the place at which to hold a summer gathering was well demonstrated by the fact that the two days on which the conference was held occurred during one of the very few hot spells experienced so far this summer. Just what was accomplished at this meeting will be given more in detail in the next issue of "Brick and Clay Record."

Another Donation to the Toronto Technical School

In addition to the list of equipment which has been donated to the Toronto (Ont.) Technical School for its new ceramic laboratory, announced in the last issue of "Brick and Clay Record," an automatic cutter has been given to this institution by B. E. Bechtel, Waterloo, Ont.

A Large Brick Fireplace Contributes to the Comfort and Coziness of the Place

A Brick-Built Farmers' Club

How One Town Adds to Its Prosperity by Welcoming the Tiller of the Soil

TOWN AND COUNTRY are brought into close communion by the enterprise of the descendants of the men who founded Seymour, Indiana. By providing a clubhouse, in which the membership is made up of the men who own farms in the neighboring country, the townsmen commemorate the debt that the centers of population owe to the men who create the community wealth.

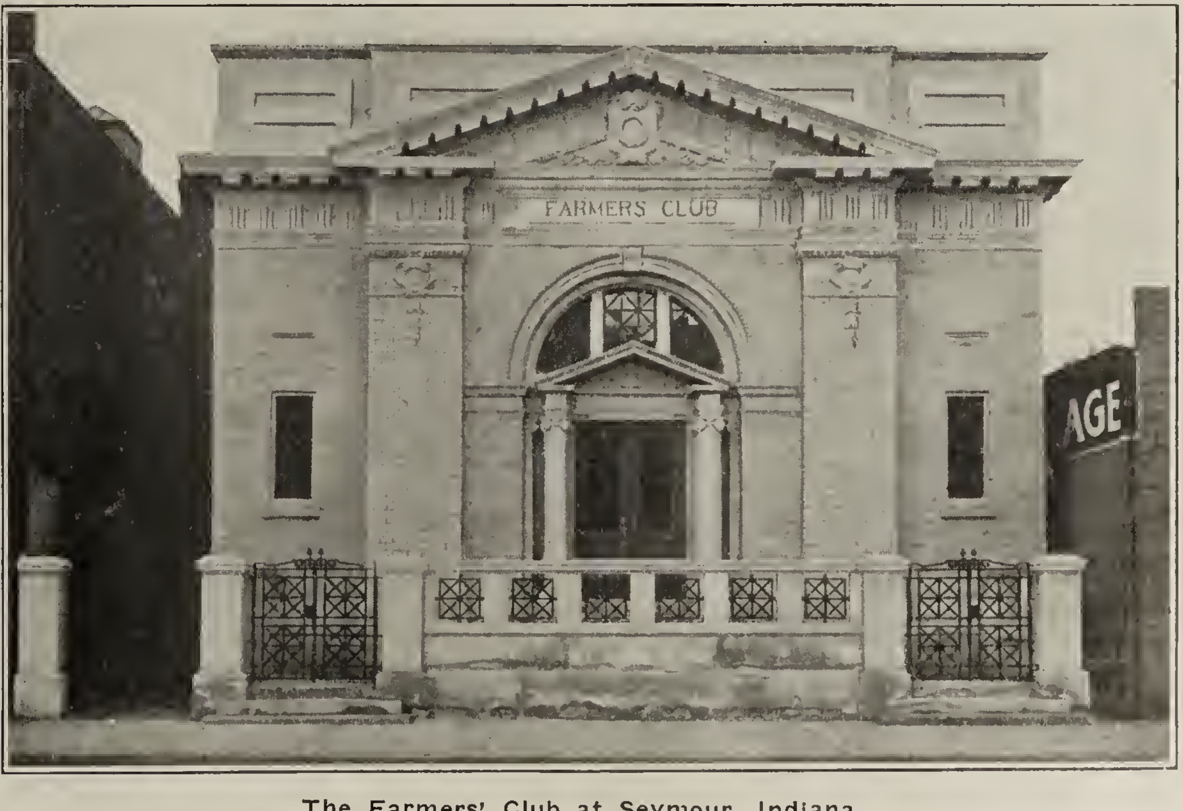
THE HOOSIER STATE has many points to commend it, beside its being the home or birthplace of many writers. For one thing, it has a great burned clay output, the value of its product in 1913 being more than $8,000,000 and an increase over the previous year of more than $500,000.

In Seymour, Indiana, a city that boasts of a population slightly above 6,000 they have built a clubhouse. This club is not one of those monuments to man's desire to avoid the feminine contact—it is no haven of rest for incurable bachelors or harried married men. Instead—it offers inducements to women visitors.

It is, in short, the Farmers' Club, and was opened to the public with appropriate dedicatory exercises, last October. The object of the club is to provide a place for the farmers that drive into Seymour from the adjacent territory, so that they may find rest and refreshment—a welcome from Seymour to the whole countryside. In commenting upon this club, the "American Lumberman" says:

"Perhaps one of the most potent influences for creating goodfellowship and true neighborliness as between farmers and townspeople has been the community club in which both farmers and merchants meet face to face as members. But whatever may be the name or form of the organization, its purposes are best served when it is so located and operated as to bring townsman and countryman into close and frequent contact. The farmers' club, therefore, or the merchants' association if it prove to be the medium for promoting social and commercial intercourse among citizens of all classes in the community, will perform a splendid service in perpetuating the conditions that are necessary to the well being of rural communities.

"The need of such organizations is being more and more realized in all sections, and attempts of various kinds have been made to meet this need. Sometimes a form of organization is adopted that permits the full membership of all classes and both sexes; sometimes a farmers' auxiliary to the merchants' club is organized and sometimes a farmers' club is formed. The chief disadvantage of the farmers' club is that it is unlikely to afford the intercourse between farmers and townsmen that really is essential. This is especially true when the place of meeting is in the country. Hence some form of organization that brings farmers to town is better



The Farmers' Club at Seymour, Indiana

than one that holds them still more aloof from their fellows in town than they are at present.

"A splendid form of community betterment calculated to afford farmers and their wives the comforts and conveniences of a family club, while at the same time bringing them to the town that is the center of the social, educational, religious and political activities of their community has been made available to farmers of Jackson county, Indiana, by the Blish Estate, of Seymour, Ind. This is a farmers' club which has been endowed and provided with a building that is admirably arranged and equipped as a club, and, at the same time is also an architectural adornment for the city in which it is located. The club building and the endowment which is to provide for its maintenance in perpetuity were presented to the farmers of Jackson county and dedicated to the purposes of a farmers' club in memory of Meedy W. Shields, founder of Seymour and a 'leading farmer of his day.'"

The building, which is "Built with Brick," is entered through a columned portico and a tiled vestibule of generous proportions into a living room 25 by 33 feet in size. This room is furnished as a meeting and lounging place for members. Several tables and numerous chairs and book shelves afford facilities for friendly intercourse and entertainment. Opposite the entrance is a large fireplace that in the colder months of the year will contribute to the comfort and coziness of the place for those who utilize the facilities of the club. Over this fireplace is appropriately placed a bronze tablet on which is engraved the following inscription: "1805-1866: The Farmers' Club, a Memorial to Capt. Meedy W. Shields, Founder of Seymour and a Leading Farmer of His Day."

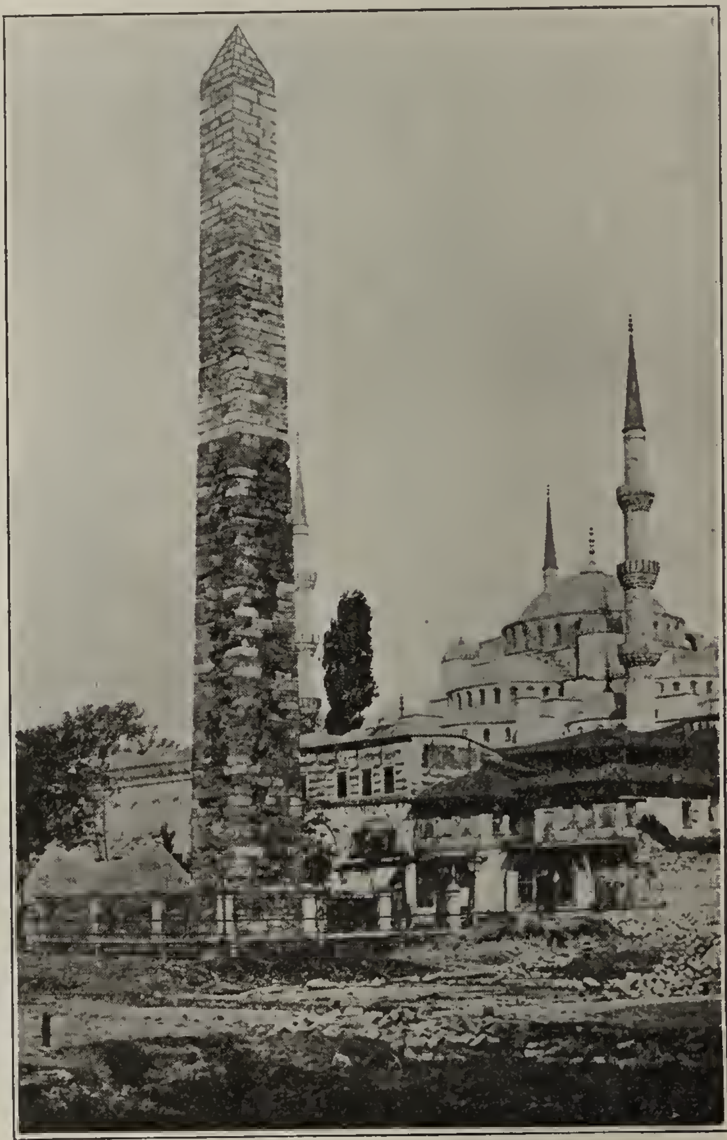
On one side of the vestibule leading to the living room is a library, and on the other side a nursery equipped with cribs, chairs and other nursery furnishings calculated to make children of tender age happy and contented. On each side of the fireplace and leading to the dining room beyond are hallways. Off one hallway is a bath room and off the other a toilet room, both equipped with all modern conveniences. The large dining room is furnished with tables and chairs and in a small pantry adjoining are a sink, lockers and shelves for facilitating the use of the room for luncheon purposes.

The club is in charge of a matron who is on duty from seven o'clock in the morning until six in the evening. The building also will be in her care, and the heating, lighting, etc., will be looked after by her.

The club organization itself has been incorporated under the laws of the state; the charter and provisions of the dedication make the presidents of the three leading banks of Seymour *ex-officio* its trustees in perpetuity. The ownership of the club, however, is in the farmers of the county, the only condition attached to that ownership being the use of the building for club purposes.

The dedication of this memorial to the farmers of Jackson county is the idea of Meedy W. Blish, of the Blish Milling Company, of Seymour, grandson of Meedy W. Shields. Mr. Blish in the dedicatory address said in part: "This property thus comes into the joint but exclusive possession of the farmers of this community without cost or other formality than the taking out of a free certificate of membership in the Farmers' Club and abiding by such rules as its board of trustees may promulgate from time to time.

A Brick Obelisk in Constantinople



WHEN THE ALLIES march into Constantinople, which some prophets (not Mohammedan) say will be within the present month, officers and men will see, many of them for the first time, some of the most interesting monuments in the world. Among these is the brick obelisk in the Hippodrome, which has been standing for more than four centuries and which was copied from the Egyptian design.

This obelisk is not unlike "Cleopatra's Needle" that stands in Central Park, in New York, so far as shape and size go, but in its composition there is a vast difference. The one that is shown in the illustration is "Built with Brick."

It is well built—very solidly put together, and looks as though it would stand for many centuries more. The brick are of larger size than those used in America, with the exception, perhaps, of one of the Fiske "Tapestry" brick, which is 18 in. by 6 in. by 2 in. thick. Behind can be seen the Church of St. Sophia.

Regarding Brick Plant Appraisals

Some time since "Brick and Clay Record" published a list of clayworking plants which had recently been appraised by a Chicago concern making a specialty of listing and valuing the property of manufacturers in various lines.

Word comes to us of another concern having a list of more than one hundred and fifty clayworking plants which it has appraised during the past few years. The list is too long to print, but it looks like a roster of the big men in the field, extending, as it does, to more than twenty states.

The reasons for plant appraisals are many and the reason in it is sound. If you do not know what you are worth, how can you hope the other fellow will believe you, when you tell him how much you *think* your plant is worth? He will prefer a certainty to a guess.

Comparative Building Costs

Typical Examples of Buildings Considered With Special Reference to Dwellings and Factories

THE ADVANTAGE of capturing the enemy's guns is twofold. It adds to our own strength while weakening the opposition. So it is with considerable self-congratulation that we reprint the following article, published in the "Building Age." Do not understand by this that "Brick and Clay Record" regards its contemporary as inimical to fire-resisting materials,—the idea is that the figures were presented at the Lumberman's Mass Meeting recently held under the auspices of the Forest Products Federation, in Chicago.

COMPARATIVE FIGURES of cost always appeal to the building contractor, and those given in one of the committee reports presented at the lumbermen's mass meeting recently held under the auspices of the Forest Products Federation in the city of Chicago, cannot fail to prove of more than ordinary interest. The report in question dealt with the comparative prices of building construction and was prepared by J. Norman Jensen, architectural engineer of the building department of Chicago.

He pointed out the extreme difficulty of giving comparative costs between residences which are built of frame construction and those built of other types, but in order to obtain a comparison between the cost of small frame and brick buildings as built in the city of Chicago, an architect prepared complete plans and specifications of quite a number of one and two-story buildings and then obtained bids. These buildings were typical of the low and medium-priced cottages and small flats actually built in great numbers in Chicago and the bidders were responsible contractors.

Since in making any comparison, the interior finish, plumbing, etc., is assumed to be the same, the final analysis is in the cost of the walls of the building. The cost of labor and materials in place, of the walls of these small buildings, exclusive of the plastering of the walls, runs about as follows:

FRAME

	Sq. ft.
2x4 in., 16 in. centers, yellow pine studding	5c
1x6 in. sheathing, and 1 layer of paper	5c
Cypress drop siding	6c
Painting	2c
Total	18c

BRICK

8 in. common-brick side wall	21 to 22c
4 in. face-brick and 8 in. common-brick front wall	45 to 50c

STUCCO

2x4 in., 16 in. centers, yellow pine studding	5c
1x6 in. sheathing, and 1 layer of paper	5c
Stucco on galvanized wire lath	12c
Total	22c

In the above analysis common-brick is estimated at $16 to $17 per M., material and labor. All the above prices include the contractor's profit. From this analysis it is seen that the cost of the common-brick and stucco wall is about the same, and that the walls of a frame building cost about 20 per cent less than either of them; 4-in. face-brick and 8-in. common-brick front wall is about two and one-half times as expensive as a frame front wall.

In each case in which a frame building was compared with a similar brick building the size of rooms, plumbing, trim, interior finish, etc., were identical. In all cases the frame building had a shingle roof while the brick structure was provided with a non-combustible roof. The average of these bids on these buildings was as follows:

	Frame	Brick
One-story cottage, 22x30 ft	$1,719	$1,823
One-story cottage, 20x36 ft	2,394	2,684
One-story cottage, 21x48 ft	3,419	3,906
Two-story flat, 24x34 ft	4,185	4,564

From these figures it will be seen that the cost of the frame building was about 10 per cent less than a similar brick building.

The substitution of inferior materials, or the using of materials less in quality or quantity than that called for in the specifications is known to the constructor as "skinning the job." This is one of the factors which is helping to legislate against the use of lumber in mill constructed buildings. A specification is drawn up intending to obtain the best grade of material. Some enterprising dealer, or contractor, or other party, deliberately places an order for an inferior lumber. The mill man either does not know or does not care about the deception. The lumber gets on the job, and then the trouble begins. The architect or engineer condemns the sticks sent, but the owner needs his building in a hurry and accepts the lumber under protest. The architect listens more attentively to the concrete man on the next job, and the lumber salesman wonders why he does not get any more orders out of that architect's office. The architect can watch the local materials which go into his concrete building, but he does not intend to stand over the mill man perhaps a thousand miles from his office.

With regard to the cost of what is known as mill construction as compared with other types of construction it may be stated that one advantage of the former is lower cost. Perhaps the best way to compare costs is to mention a number of actual bids on completed structures. In a certain large architect's office a design was prepared of a building which was to be erected in an old manufacturing district in Chicago. The building was five stories and basement high, 100 by 100 ft., and designed for 280 lbs. live load. The panels in the standard mill design were 14 by 16 ft., and brick bearing walls were used throughout. The concrete building of the same height and size was designed in the most economical type of flat slab concrete skeleton construction. The actual bid for the mill constructed building was $65,100 and for the concrete type $72,200.

Another building seven stories and basement high, 68

The Farmers are Encouraged to Bring Their Wives and Little Ones

by 75 ft. and designed for 150 lbs. live load. The panels in both designs in this case were 18 by 16 ft. The mill constructed building cost $65,400, and the concrete building $75,300.

If wood floors had been required in these buildings, the difference between the mill and the concrete prices would have been greater than ever. In the buildings which were compared, the elevators, heating, lighting, sprinkler, equipment, etc., were the same.

It is useless to attempt to make a sweeping statement as to how much a mill constructed building should cost per cubic foot, or square foot, or a concrete building on the same basis. Sometimes a mill constructed building of a certain area would have to be divided by a brick wall with fireproof doors, from basement to roof. A similar concrete building would not require this dividing wall, according to building ordinances. The cost of this brick wall alone would offset part of the cost of the concrete building. The best that can be done is to take all the known facts into consideration, and try to arrive at general conclusions, based on a great many comparative designs, and on the experience of the best architects and builders.

The writer has before him a long list of buildings constructed within the last four years in a newly developed manufacturing district in Chicago. The vast majority of these buildings are of the mill constructed type, ranging in cost from $15,000 to $225,000. The cost per cubic foot ranged from 6c to 11c and per square foot 80c to $1.70.

The range of costs is so great that no generalization can be made on them only. The point which the writer wishes to make is that these buildings were built of mill construction in preference to concrete or other type of construction. In a great many cases these buildings were designed in other types of construction besides mill. The same exterior walls, the same mechanical equipment, the same sprinkler system, etc., was used throughout, the only variation being the type of floor construction adopted. By comparing the costs of the different types of construction, the following conclusions were reached:

With column spacing not exceeding 16 ft., mill constructed buildings designed for 100 lbs. live load cost 20 per cent less than concrete buildings; for 150 lbs. live load, 15 per cent less, and 200 lbs. live load about 10 per cent less. When the live load was 350 lbs. or over a concrete building was cheaper.

It was stated that the above analysis was based on column spacing of 16 ft. or less. When the required column spacing in any building is greater than 16 ft., the relative economy of mill construction disappears. It has been found, however, that the column spacing of 16 ft. is ample enough for the vast majority of manufacturing and other mercantile businesses. The live load mentioned is the load per square foot which can be safely put on top of the floor. This live load is usually the weight of machinery, or goods placed on the floor. For most light manufacturing buildings a live load of 100 lbs. per sq. ft. is sufficient, and for 75 per cent of the buildings used for storage purposes 200 lbs. per sq. ft. is all that will ever be placed on the floors. So the column spacing and the loads cover most all the cases which may arise.

Family and Neighborhood Groups May Meet for Luncheon and Gossip. The "High Chair" Tells its Own Story

Another point which determines the adoption of mill constructed building in preference to concrete is the fact that in ordinary lines of business the rate of insurance on a sprinkled mill constructed building and contents runs about 25c, while the rate on a concrete building and contents, unsprinkled, runs about 45c. The rate on both types of construction, sprinkled, is about the same, but the cost of installing the sprinkler system in the concrete building makes the total cost still higher in comparison with a mill building. A concrete building in which wooden floors are used cannot compete with mill construction.

Educate Your Men! They Will Be Better Workmen for It!!

No machine has ever been invented that is as wonderful in its mechanism as the lowest paid man in your employ.

Every man on your plant has a certain amount of intelligence. Whatever you do to develop that intelligence makes that man a better workman, producing better goods at a lower cost.

Encourage your men to develop ideas that will help them to do better work, and to make your plant do better work.

Read the Offer at the Head of the Superintendent's Page in this Issue

YOU BELIEVE IN CO-OPERATION?

YOU BELIEVE in helping yourself by helping others—why not help yourself by **helping us?** We want to publish a better paper than we have ever published—the best paper that clayworkers have ever seen.

You can help us to do this, because **we need your ideas**—your viewpoint. We want to know what you think is best for **your particular branch** of the clay working industry and for **your own particular plant.** Your advice will help us and make us better able to earn and keep your confidence.

Remember—your helping us, just now, is like planting seed in your own ground. You have a fixed subscription price—**the better "Brick and Clay Record" is, the more you get for your money. The Heavier Your Investment of Helpfulness, the Heavier Your Dividend of Service.**

It Won't Be Very Much Trouble to

¶ Read this page carefully, and, when you have caught its import, be one of those who are willing to give a moment's thought and

Advise a fellow who Needs Advising!

¶ Tell us—please

Which of the features now being published in "Brick and Clay Record" have most value and interest to you?

¶ Put down numerals, 1, 2, 3, 4, 5, and so on, to indicate which you think is most important—that will be number 1—and the next in importance will be number 2, and so on, down to number 12—that will be the one you think least of.

¶ These features are

The Editor's Corner
News Articles and News Features
Feature Articles
Selling Articles
Articles of General Interest
Technical Articles
Questions and Answers
The Letter Box
The Superintendent
Machinery and Equipment
Freight Tariffs
Semi-Monthly Trade Review

¶ This covers, pretty well, what we are doing at the present time, but we, with you, are looking to the future.

¶ Tell us—please

What phase of your business you think we are neglecting?

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....

What sort of articles do you think we should publish, in order to make the magazine more interesting to you?

....
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....

What errors of judgment—of policy—of direct statement—have you noticed in our pages during the past year? This refers to the advertising pages as well as to those devoted to editorial matters.*

....
....
....
....

¶ And tell us—please

Do you read the advertisements carefully and critically?

....

Please think about this—it isn't right, in a mutual proposition, to let the other fellow do all of the work.

Nor is it right to criticise him to others unless you are willing to tell him his faults right to his face.

Have you one great hobby that you would like to see us take up, and develop?

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* You might write us a letter, if you have a good deal to say right there.

Tear Out This Whole Page and Mail It

To Brick and Clay Record, 445 Plymouth Court, Chicago

Name ____

Address ____

(We will not use your name)

Progress Marks Tile Meeting

Healthy Growth Distinguishing Feature of Semi-Annual Gathering at Indianapolis

ABOUNDING IN ENTHUSIASM and with bigger plans for the future, the first semi-annual meeting of the Hollow Building Tile Manufacturers' Association of America, held at the Hotel Severin, Indianapolis, Ind., on Tuesday, July 13th, passes into history as being one of the most successful meetings held by that organization.

In spite of the fact that the gathering was held at a time of the year when most manufacturers of clay products are extremely busy taking care of the annual rush of business and that the place chosen for the meeting has been unable to find anyone who would "boost" it as an ideal summer resort, the attendance was very good, about twenty-five members and interested parties being present.

The morning session, which began at about 10:30 A. M., was given over to a business meeting. The report of the secretary, Charles T. Harris, was first read, this being a resume of the progress made by the association since its organization in January of the present year. The accomplishments as set forth in this report were very encouraging and the members of the association may well look back over the past six months with satisfaction as to the amount and quality of the work done and the results accomplished. The most important undertakings which were mentioned in Mr. Harris's report were also covered more in detail in the reports of the various special committees which followed.

A report from a committee which was appointed early in the year to draw up a code of business ethics was then requested, but owing to the absence of its chairman, Frank W. Darling, the secretary gave a brief outline of the work accomplished. The drawing up of this code has been one of the most important accomplishments of the association and has for its purpose the raising to a higher plane of the methods used in marketing hollow clay building tile and fireproofing. The sections of this code should have the careful consideration of every manufacturer of the above mentioned commodities and the most important features should be printed on every quotation sheet.

R. L. Denison, chairman of the committee on tests and loads, then gave a report of the work accomplished by that committee. A very excellent building code has been drawn up by this committee and printed in pamphlet form. This code is the result of considerable work on the part of the committee and the expenditure of much time and money. The result, however, has been very gratifying and with the exception of a few minor changes which were decided upon at the last executive committee meeting at Atlantic City, N. J., this code will stand as the recommendation of the association covering the use of hollow tile in building construction. Since it will be necessary to reprint this code, Mr. Denison suggested that a preface be included, explaining the method used in drawing up the code and some of the incidents accompanying its writing. This, it was stated, would lead to a clearer understanding on the part of the reader regarding certain provisions in the code.

The report of the committee on publicity, of which Frank W. Darling, was chairman, was then read by the secretary, in the absence of Mr. Darling. There seems to be little doubt in the minds of those who manufacture hollow tile that one of the greatest needs of the industry is the education of the masses, and trade and technical men to the merits of their product. Hollow tile, being a new material in the building field, has before it a large task in bringing to the eyes of the building public reasons why it should use this material. Considering the funds at the disposal of this committee, considerable progress toward the inauguration of a publicity campaign, has been made. Educational articles on the uses of hollow tile have been published by a number of farm, trade and specialized journals and in some publications that reach the home builder. Hollow tile has little or no literature and it is the intention of the association that these articles should fill this long felt want. The committee reported that the work accomplished to date has been very encouraging and called attention to the fact that more funds were needed for the enlarging of this very important part of the association's activities.

The report of the treasurer was then read, showing that the association had carried on its work, accomplishing maximum results with a minimum expenditure of funds.

After some minor discussion the meeting was adjourned and all those present were entertained at luncheon by the association.

The afternoon session, which began at two o'clock and lasted until five, was by far the best part of the day's program. Addresses, for the most part, occupied the time but the messages from the speakers were so practical and timely, and the enthusiasm with which they were delivered so marked, that everyone forgot how warm it was and listened with undivided attention.

"Bigger Business Through Association Work" was the subject of the first address, delivered by Harry Newman Tolles, Bureau Lecturer of the Chicago Association of Commerce. Mr. Tolles' talk was inspiring and gave those present an insight of the possibilities to be obtained through co-operative effort as an association. Mr. Tolles, who has had an extensive experience in lecturing on salesmanship and personal efficiency, made a very interesting analysis of the factors which determine the value of an employe. He showed how defects and deficiencies might be eliminated and the efficiency of the entire organization greatly increased. His talk was replete with stories of experiences of business men who have managed large organizations and who have been successful executives through their ability to promote the personal efficiency of their employes.

"The Jack-Pot and Future Publicity" was the subject of the next talk, which was given by Edwin G. Zorn, who further enlarged upon Mr. Darling's report given in the morning. Publications containing educational articles on the uses of hollow building tile were shown and an explanation made of the points covered in each article. Some suggestions for future publicity were given and a campaign outlined, which had for its purpose the dissemination of facts, data and information regarding the uses of hollow tile to home builders, farmers, factory owners, engineers, architects, contractors, railroad officials and a host of other potential factors in the selection of building materials. Much interest was aroused by the showing of what had already been accomplished and of material which is now in hand for the propagation of a more extended campaign. It is the hope of the association that this work may be greatly enlarged in the near future.

E. J. Mehren, editor of "Engineering Record," then spoke on "Problems and Publications." Mr. Mehren gave some very interesting facts regarding the activities of other associations in the building material field, especially the cement manufacturers' association and the recently organized gypsum manufacturers' association which were held up as a goal to be reached by the manufacturers of hollow tile.

After Mr. Mehren's talk, a general discussion took place in which matters pertaining to the work of the association were commented upon and suggestions for future work given. The meeting then adjourned, to reconvene at seven o'clock in the evening, at which time further discussion was in order.

During the interval between the last two mentioned sessions, a meeting of the executive committee was held and matters coming under the jurisdiction of that body were taken up and disposed of.

The universal opinion of those present was that the meeting was the best that had been held, and that the future and welfare of the association were highly encouraging. Two new members were secured at this meeting and two more were formally acted upon and accepted by the association during the afternoon session.

Pennsylvania Has New Compensation Law

Pennsylvania now has a compensation law for the workingman. The newly passed measures which combine into a workman's compensation law for this state were recently authorized by Governor Martin G. Brumbaugh when he signed the six distinct bills by which workmen's compensation is made a reality. The new act establishes a complete system of indemnity and a state insurance fund. It is scheduled to become effective on January 1, 1916. Before the law can become operative, however, it will be necessary that the people of the state approve the constitutional amendment proposed and which amendment permits the Legislature to fix the amount to be recovered for injuries resulting in death, at the election to be held on November 2, at which time this question will be finally set before the residents of Pennsylvania for approval.

Understanding Reached on Pottery Alterations

In a recent conference held in the Trenton Potters' Association rooms in the First National Bank Building, Trenton, N. J., pottery manufacturers of the state, after a talk with Colonel Bryant, head of the state department of labor, came to a satisfactory understanding regarding the recent orders of the department directing plant alterations. The regulations of the state department will be complied with, Colonel Bryant clearing up a rather cloudy situation arising from a too severe interpretation, by the manufacturers, of the language of the department's directions.

One of the orders required an impermeable floor in the dipping rooms. The prevailing impression among the manufacturers was that cement or concrete would be required, necessitating in many plants a reconstruction of buildings in order to stand the strain of the heavy floor. Colonel Bryant explained that the department did not expect the potters to install such floors, but floors that would stand wet washing, and he suggested materials much less expensive than cement or concrete, that would meet with the requirements.

The local companies represented were: Cochran, Dugan and Company, Acme Sanitary Pottery Co., Bellmark Co., Elite Co., Keystone Co., John Maddock and Sons, Thomas Maddock and Sons, Monument Pottery Co., New Jersey China Pottery Co., Resolute Co., Sanitary Earthenware Specialty Co., Trenton Potteries Co. Tableware manufacturers—Anchor Pottery, Cook Pottery Co., International Pottery Co., Maddock Pottery Co., Mercer Pottery Co., Artistic Pottery Co., E. H. Freeman Electric Co., Imperial Porcelain Works, National Porcelain Co., Star Porcelain Co., Trent Tile Co., Trenton Porcelain Co., Climax Porcelain Co., Trenton Fire Clay and Porcelain Company.

Others present were: Camden Pottery Company, Ironsides Pottery Co., Lambertville Pottery Co., and the Standard Sanitary Pottery Co.

We Are Learning Fast

It were trite to say that "necessity is the mother of invention" in view of the fact that as soon as we began to feel the stoppage of imported materials we cast about for a way to produce something that would replace them. A writer in the San Francisco "Star," telling of a pilgrimage through the vast exhibition pavilions says:

"At a table of artistic display of pottery, a woman directly opposite us in the 'Palace of Varied Industries' was making a noticeable showing of her knowledge of such goods. She took in hand a blue vase, exquisite in coloring and symmetry, without decoration, and explained to her listening friend, and to us who were listening too, about a pottery in Austria where the secret of this peculiar dull blue overglaze was sacredly kept. As she returned the vase to its particular spot on the table we noticed (and so did she), the legend on the card upon which it was placed: 'Made in Berkeley, California.' Just that mistake might happen to anyone, and doesn't prove at all that the lady was not an expert pottercian, but does prove that the idea of superiority in foreign-made goods is too often without the foundation of knowledge —an inbred and fostered idea that a thing is better because it is foreign-made—and usually higher-priced because of customs duty."

Pottery Company Installs Working Exhibits

The Steubenville (Ohio) Pottery Company has completed plans for the installation of working pottery exhibits in a number of large department stores throughout the country for the purpose of boosting the demand for American made pottery. The first of these exhibits was made a few weeks ago in a Pittsburgh (Pa.) store, and the sale of American pottery which followed showed a marked increase. The exhibit includes a plate jigger, glaze mill, plunger mill, a full line of samples of all raw materials entering into the manufacturing of pottery and decorating materials. Factory workers are employed in these exhibits, so that the lay member can see at a glance just how pottery is made.

The Council "Will Take No Chances"

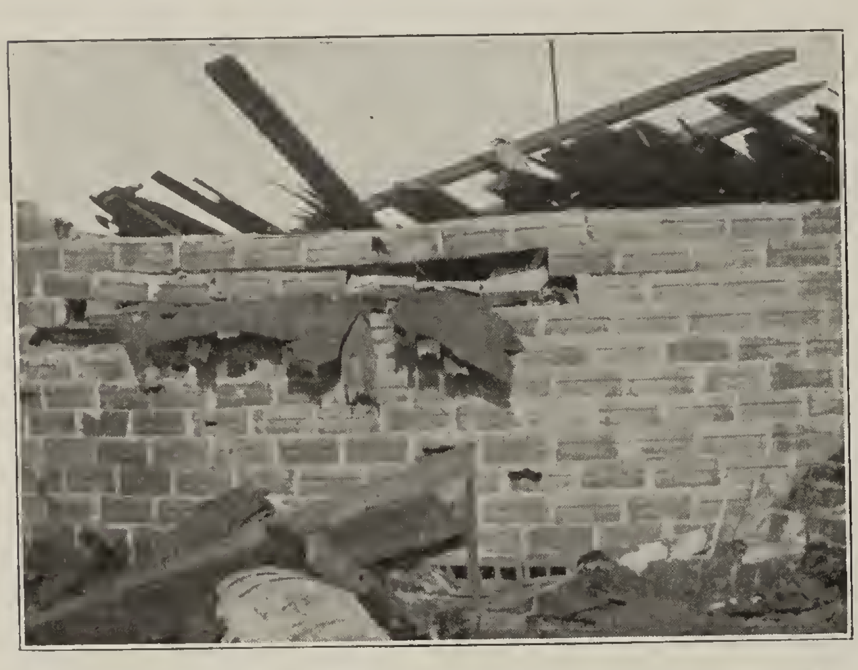
The Portland Silo Company of Springfield, Ill., sends us a clipping from the Portland (Indiana) "Daily Sun," which reads as follows: "Judging from all the bids submitted on the proposed improvement of West Arch and Pleasant Streets, the residents of those thoroughfares can have most any kind of improvement they want, but if they fail to express a preference for some other kind, the city council will take no chances and will order the improvements to be 'Paved with Brick.'"

A Tornado-Proof Roof

The Story of How a Roof Constructed of Burned Clay Withstood the Attack of a Destructive Hurricane

THERE ARE MANY who will never forget the disastrous tornado that devastated Omaha, Neb., on Easter Sunday, March 23rd, when many lives were lost and considerable damage was done to property, especially homes in that city. That this disturbance was more or less general over the West and part of the Middle West is indicated by the damage experienced in many other localities where high, destructive winds wrought havoc among exposed buildings, especially those on farms throughout Nebraska, Iowa, Missouri and Illinois.

The spring of 1913 also holds some vivid memories especially for Daytonians and those clayworkers whose plants are located in the Ohio River valley. The hardships and losses suffered during the floods in Ohio nearly two and a half years ago have no doubt stamped that particular period in the world's history very indelibly in the minds of a great many people.



Showing the Damage Done to a Newly Constructed Wall by the Clay Shed Roof Which Was Snatched Up by the Tornado and Deposited as Here Shown. Although the Bond in the Second and Third Courses from the Top Was Broken, the Top Course of the Tile Remained Intact

It was just four days after the Omaha disaster, on March 27th, that a similar tornado made an unexpected call on the inhabitants of Adel, Iowa, some of the results of which are shown in the accompanying illustrations. The buildings are on the grounds of a local clay products company's plant and were built to demonstrate to prospective hollow tile customers some of the advantages of that construction. The large round building without the roof and which seems to have suffered the most damage was in the course of construction at the time the tornado paid its visit. The broken up lumber and debris scattered about in the vicinity of this building are the remains of the roof formerly on the clay shed which was lifted up and carried by the violence of the hurricane in the direction of the two buildings here shown where the wind dropped its burden with a mighty crash upon the walls of the uncompleted structure.

Some idea of the violence with which this roof was hurled at the walls of the building in question may be gained from the first two illustrations shown. Part of the flying roof was thrust with great force into the second and third courses of tile from the top, destroying the bond in these courses and many of the tile. It is a curious fact, however, that in so doing the top course remained undisturbed and its bond unbroken, the only possible sign of damage being in the knocking out of a very small piece from one of the tile in the top course, but this in no way affected its continuity.

Perhaps the most striking result of the tornado's visit, however, was that it was compelled to leave unharmed the smaller demonstration building to the south of the damaged structure. While the clay shed roof carried by the wind passed by the smaller building and lit on its neighbor across the way, there is no doubt but that the wind whistled around this structure with considerable violence.

The reason it was unable to remove the roof may be explained by the fact that, like the walls of the building, it is constructed of burned clay and is known as the self supporting tile roof.

The accompanying sketch shows the construction of this roof more in detail and is worthy of careful study. In the first place it will be seen that the roof is really a continuation of the walls and this explains why the wind was unable to displace it. In building this roof the walls of the structure are carried up to the top course in the usual manner and then a special cornice block is laid, around the outside of which is carried an extra heavy band of plow steel. A single row of brick is then tamped in against the steel, firmly imbedding it in the wall and finishing off the cornice. This reinforcement takes care of the lateral thrust at the heel at the arch formed by the roof, converting it into a downward thrust.

Another View of the Damage Wall Taken from the Top of the Self-Supporting Tile Roof

The roofing tile, which are nothing more than a hollow brick with a lip on it, are then laid in courses, each course being completed before the next one is laid. This operation is continued until the roof is completed. No joists or rafters are necessary with this type of roof, the entire load being carried by the tile which is keyed in to form a complete arch.

The Neat Appearance of the Self-Supporting Roof of Burned Clay is Very Noticeable. Here Is Shown the Small Demonstration Building That Withstood the Attack of the Tornado; also the Larger Building Which Was Damaged by Having the Clay Shed Roof Dropped on It

Of course this type of roof can only be used on round buildings such as silos, water tanks, etc., where the arch is possible and where its full strength may be realized. For silos and water tanks especially, this roof makes an admirable covering, the air spaces in the tile reducing to a minimum the possibility of the water or silage freezing.

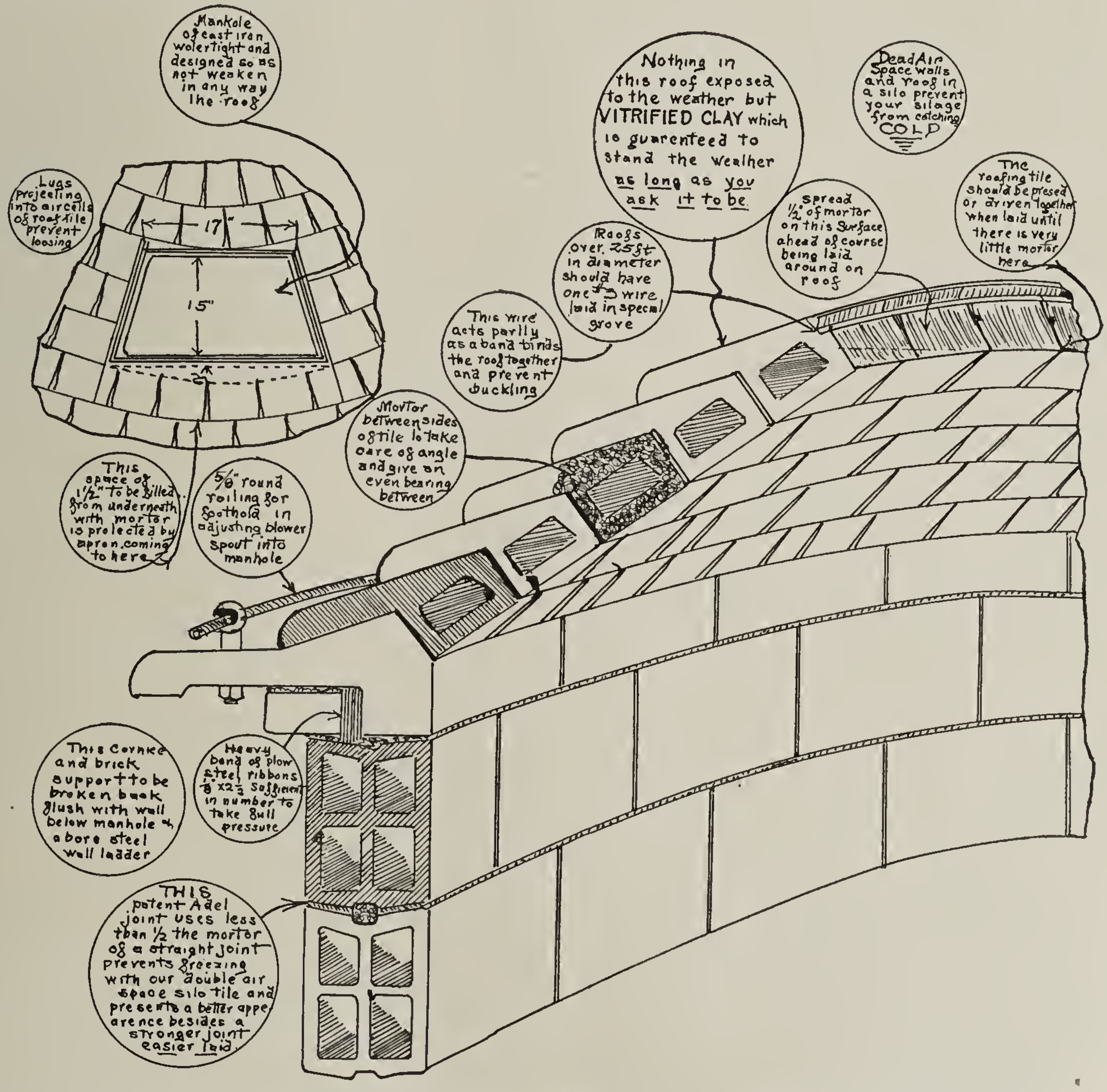
Regarding the cost of this roof, it has been found to run about forty per cent higher than one built entirely of wood. This comparison, however, is not unfavorable especially when it is remembered that this roof, when properly built, will last for generations. It is also much stronger than a wooden roof, and is absolutely fireproof.

This roof presents a very uniform surface on the inside, and when coated with a thin wash of pure cement makes a surface that is perfectly smooth.

The manufacturer of this roofing tile has applied for a patent on it, and so informs sent.

Like all other shapes and forms of burned clay this roof forms of burned clay this roof will require little or no repairs. When made of vitrified clay its manufacturer guarantees it to withstand the attacks of the elements for an indefinite period. Of course proper care should be taken in building the roof to see that the tile are well laid, and in this connection a blue print is furnished with each order of tile, giving complete and concise directions for laying up the roof. This print is reproduced herewith, and a careful study of it might not come amiss. It will be noted that for silos, provision is made for the insertion of a manhole in the roof to admit the spout of the silage blower used in filling the silo. This manhole is so designed as not to weaken the roof in any way, and as may be seen, directions are given for laying it into the roof.

The number of these roofs already sold and put in place is not very large. The invention is new, and like a great many other forms of burned clay, this roof needs considerable promotion and publicity, for the average farmer is too busy to devote any of his valuable time to a search for hidden materials, or products, much as he is anxious to increase the efficiency of his farm. And so the self-supporting tile roof brings another reason for more extended publicity for burned clay.


Mankole of cast iron wolertight and designed so as not weaken in any way the roof
Lugs projecting into aircells of roof tile prevent loosing
17"
15"
Nothing in this roof exposed to the weather but VITRIFIED CLAY which is guarenteed to stand the weather as long as you ask it to be
Dead Air Space walls and roof in a silo prevent your silage from catching COLD
The roofing tile should be presed or driven together when laid until there is very little mortor here
Spread ½" of mortor on this Surface ahead of course being laid around on roof
Roofs over 25 ft in diameter should have one #3 wire laid in special grove
This wire acts partly as a band binds the roof together and prevent buckling
Mortor between sides of tile to take care of angle and give an even bearing between
This space of 1½" to be filled from underneath with mortor is protected by apron coming to here
5/8" round railing for foothold in adjusting blower spout into manhole
This Cornice and brick support to be broken back flush with wall below manhole & above steel wall ladder
Heavy band of plow steel ribbons 1/8 x 2½ sufficient in number to take full pressure
THIS patent Adel joint uses less than ½ the mortor of a straight joint prevents freezing with our double air space silo tile and presents a better apperance besides a stronger joint easier laid

A Reproduction of the Detail Drawing That Is Supplied With Each Order of Roofing Tile to Assist the Purchaser or His Mason In Laying the Roof. Particular Attention Is Called to the Most Important Points to be Observed In Doing the Work, and the Manner of Inserting the Manhole for the Silage Blower Is also Shown

Read Your Fire Insurance Policy

During the early part of the present year this magazine published a series of articles on the fire insurance contract, which you call your policy. In them, the necessity of reading and of thoroughly understanding the provisions of the contract that you have made with the company that "covers" your plant or home, were set forth, we believe convincingly.

The Federal Supreme Court has ruled that the assured is obliged to read his policy and the following article, from the "Insurance Post" is of interest:

Fire insurance men have long complained that much of the prejudice against the business arose from ignorance of the public, and that few business men ever read their insurance contracts and familiarized themselves with their conditions. The Supreme Court of the United States has now rendered a decision holding that it is the duty of the insured to understand the provisions of his policy contract, and that failure to do this does not relieve him from its provisions.

The decision was in a case growing out of the burning of a lumber yard, the policy containing a warranty by the assured that a continuous clear space of 100 feet should be maintained between the 'lumber and the mill of the assured. The lumber burned, but it was clearly shown that the clear space warranty had been broken, and the lower court directed a verdict for the insurance company.

The policy, however, was endorsed as a renewal of the previous policy, and the insured offered to prove that during the life of the previous policy the company had received an inspection report showing that the clear space clause was not complied with, and yet had renewed the policy. This evidence was excluded, but the circuit court of appeals held that it should have been submitted to the jury, and therefore reversed the judgment. This was appealed to the Supreme Court, which held that the renewal endorsement on the policy was only for history and convenient reference and did not justify the judgment of the lower court.

Justice Holmes, in presenting the opinion of the court, said "No rational theory of contract can be made that does not hold the assured to know the contents of the instrument to which he seeks to hold the other party. The assured also knows better than the assurers the condition of his premises, even if the assurers have been notified of the facts. He can not take a policy without reading it, and then when he comes to sue at law upon the instrument ask to have it enforced otherwise than according to its terms."

And yet the courts are busy reforming contracts of insurance because they were not what the policyholder desired, after the fire. The Supreme Court tells them that it is their business to know in advance or not to find fault if they fail to investigate.

Clayworkers Seek New Field in Alaska

Alaska as a possible field for development in the manufacture of clay products, has been brought into the "limelight" by K. I. Fulton, a ceramic engineer of Portland, Ind., who, with his father J. L. Fulton, has been operating the Lehigh Clay Products Company of Lehigh, Iowa, and the Portland Drain Tile Company at Portland, Ind.

The Fultons are now on their way to Seattle, where they will take a steamer to Alaska. They will spend considerable time at Seaward and Knick, coastal terminals of the new government railroad which is now being built. Mr. K. I. Fulton is one of a party of prospectors who will search for oil, natural gas and clay products in the frozen North.

According to reports of the Geological Survey, Alaska possesses some deposits of low-grade fire clays and other clays. With the development of new industries in this promising country, there will undoubtedly come a greater demand for better housing facilities. The fact that Alaska possesses very little timber and that it is necessary to ship in all of the wood used there, suggests that the establishment of a brickmaking enterprise might prove profitable. The cold climate also makes the building of warm houses a necessity for the comfort of the inhabitants, and should suitable clays be found, this possession, which has heretofore only furnished material for adventurous stories and a mecca for those possessed with the gold fever, may now offer new opportunities for the man who works in clay.

Government Collecting Data on Roads

Manufacturers of paving brick will be interested in knowing that the Office of Public Roads, Government of the United States, is now engaged in gathering information regarding public highways of this country, which, when complete, will serve as a basis to ascertain the relative durability and economy for various types of roads.

About fifteen thousand sets of question blanks have already been distributed among the state highway commissions, the purpose being to obtain from each of the three thousand counties in the United States a close estimate of total mileage of roads, including the mileage of the ten principal classes into which highways are divided. In addition to this, information is desired with regard to the tax rate for the roads and the amount of work and money they have cost the community.

When this investigation has been completed, it will be followed by further inquiries covering the condition of the roads from time to time, so that ultimately, the Office of Public Roads will have a large amount of valuable data bearing upon the relationship between the original cost of the highway and its durability.

Steady Brick Demand in Philadelphia

There has been a steady demand for building brick in Philadelphia and vicinity which is expected to increase during the summer months. Manufacturers are preparing for a very busy season in paving brick as this is the time of the year when that material is greatly in demand. The demand for fire-brick has not been very strong during the past several months, but is expected to become much better during the next several weeks. Taken as a whole, the leading members of the brick trade in the eastern section of Pennsylvania are very optimistic as regards the coming summer season and expect to do a large volume of business.

Drain Tile in Ohio

The Agricultural Department of Ohio is emphasizing the usefulness of clay drainage tile for farm use, and the fruits of its campaign in previous years are being seen in the fact that more tile has been laid this year, according to current reports, than ever before. It is declared that during the past twelve months more than 1,000 carloads of clay drainage tile have been laid in Ohio, and that indications are that this astonishing record will be eclipsed next year.

The Manufacture of Promenade and Quarry Tile

Being an Authorative Article with a Subject Upon which Little has been Written — Not Only are the Technical Considerations Discussed, but the Latest and Best Factory Practice is Convincingly Presented

By E. T. Montgomery, E. M. (in Cer.)

Associate Professor, New York State School of Clayworking and Ceramics, Alfred, N. Y.

(Concluded from July 6 issue)

SOME CLAYS will require that the dies be of the lubricating type, while others will work with dry dies. In the same way, some clays will require aging for a certain length of time in a soaking pit, before being used in the auger machine; but as a rule the pugged body passes on at once into the machine that shapes it.

This machine should be sufficiently strong to withstand the considerable pressure that must be used to force the column through the rather small aperture of the die.

The cutting table most generally used is of the drain-tile cutter type and cuts one tile at a time.

At the Kushequa, Pa., plant, the clay is not aged, but passes directly into the auger machine which produces the clay column. This machine is carefully adjusted, so that it produces no auger laminations and feeds a steady, solid column of clay into the die. After considerable experiment, a simple, single-tile, oil-lubricated die has been adopted at this plant—a die that is practically without scales except for the single one that distributes the oil. The die is made in two halves, split horizontally through the center so that it can be machined and the wear taken up from time to time. The opening in the receiving end of the die is a figure 8 in shape; that is, it is flared out at the sides and corners to take care of the differential flow of the clay and from here the slope of the die is gradual to the orifice at the other end.

The oil used is a paraffin base press-oil and is supplied to the die under pressure from the cylinder to be seen beside the machine in the illustration. The pressure is derived from a compressed-air line and is transmitted to the oil by water from a water cylinder below the floor line.

A couple of die troubles due to improper design of the die are worthy of discussion here. The first one manifests itself in the form of a bowed or convex end on the tile after drying; the end of the tile next to the machine is found to remain quite straight and square, but the end farthest from the machine, and which consequently emerged first, is found to be badly bowed in an outward or convex position. This is caused by a differential flow in the clay column due to the use of a rectangular die with square corners. The friction at the sides and corners upon the outside of the column permits the central portion to flow more freely and therefore faster. A strain is therefore set up in the column and remains in the green tile—a strain that will show up only upon drying, and the convex end results.

The cure is to flare the receiving end of the die at the sides and corners and constrict it at the center. This will prevent bowed ends; but if carried too far will cause the second trouble, namely, a dished or concave face. The remedy for this is to machine out the top face of the slicker, or orifice of the die, sufficiently to relieve the pressure on the face, and permit it to expand sufficiently to make the face of the tile level.

Troubles arising from blisters and laminations are too complicated to discuss in detail in this paper. They involve a consideration of the raw material itself, its preparation, and the design and adjustment of both the auger and the machine. If conditions are nearly normal, these troubles can often be relieved by keeping the barrel of the machine full of clay, allowing a sufficient collection chamber between the auger and the die, and using an auger which will compress and feed a steady and solid column of clay into the die.

For a cutting table, the Kushequa Keramic Company uses one of the drain-tile cutter type, cutting one tile at a time. This table is so adjusted to the die of the machine as to assure the safe delivery of the column to the cutting table without the usual offset and consequent sag in the column, a prolific cause of strain and subsequent warping or cracking.

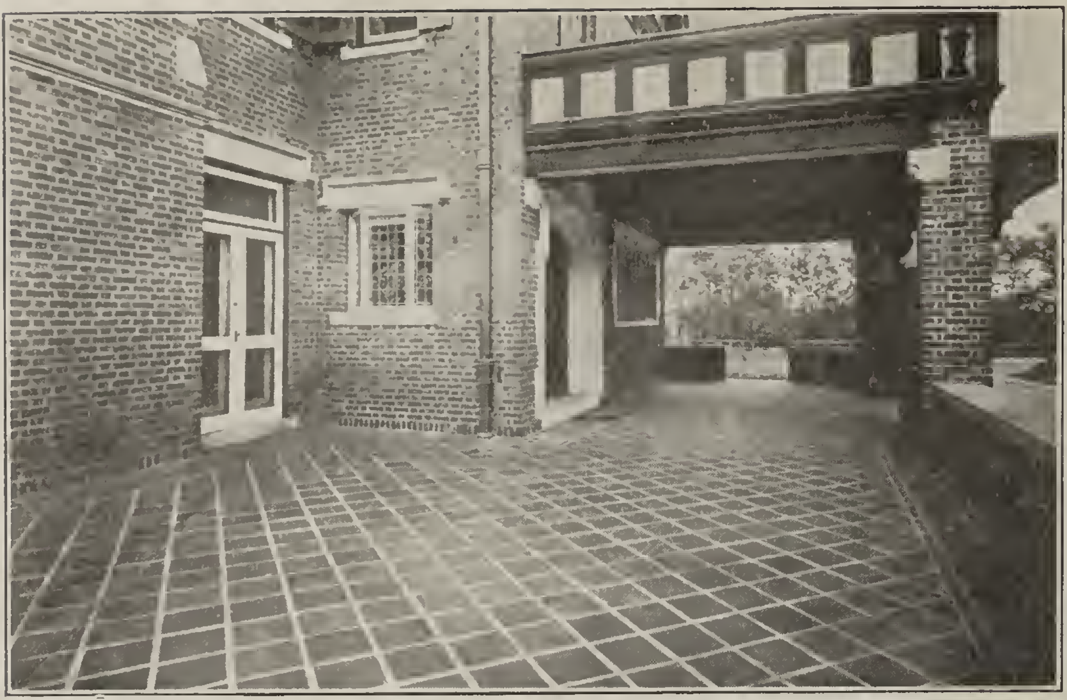
As the tile pass from the cutting table onto the belt they are inspected, all crumbs of clay removed from the surface, and faced together in pairs.

In this position they are carried by the belt between a steel plate under the belt and a brass roller so adjusted as to give the faced tile just enough pressure to take out any wave or curve and make them perfectly flat. There are no springs on this roller to give the pressure. It has a positive adjustment by slot and bolt.

DRYING

No special pallets, cars or dryer are necessary for promenade tile, but care must be exercised at every step. Rolled edge steel pallets are used at Kushequa in connection with standard steel-rack dryer-cars. On these pallets the faced tile are placed several pairs high to prevent warping in drying, the weight of the superimposed tile tending to keep straight those underneath.

Any good, easily regulated brick-dryer can be used for tile, but the tile must be dried slowly. The receiving end of the dryer is kept at a temperature of 90 to 100 degrees F., and the hot end at about 250 degrees F. It takes a car of tile three or four days to pass through the dryer. As the kilns at the Kushequa, Pa., plant are sealed to cool, there is no waste heat for the dryer, so it is independently fired with gas. As gas is used in both



A Terrace Laid with Kushequa Tile. The Border is Made Up of 3x6 (Close to Building) 6x9 and 2x6 Promenade Tile. The Flooring Proper is Laid with 9x9 Quarries

dryer and kilns, no trouble with scum from the fuel is experienced.

SETTING

It is probably necessary with most clays and most fuels to set the tiles in boxes as roofing tiles are fired, but here again the Kushequa method differs. Through a happy combination of circumstances coupled with the capacity for taking infinite pains, Mr. Blair is able to set his tile in the kiln, seventy-four tile high, without a block of any kind. He can do this because his clay has a reasonably long vitrification range, he fires with gas, and the firing is carefully done.

Round kilns are used and the tile are set seventy-four high, still faced in pairs, in concentric rings with several short parallel rows in the center. The base for these rings is made perfectly level and set up the thickness of two fire-brick off the checker floor of the kiln. Each ring stands by itself and the tile are so placed as to leave spaces for the flame and heat to pass through the setting.

BURNING

The kilns are thirty-foot, round, down-draft kilns, four to a stack. Each kiln has ten fire boxes. They are fired with gas to cone 3 or 4 in ten days. They are then cooled for ten days, during seven of which they are sealed up tight. It takes ten days more to unload the kiln and reset, making thirty days in all to turn a kiln. The burning is regulated entirely by draw trials and settle and time schedule.

The company has eight kilns and each kiln holds sixty thousand tile, three thousand of which are ties, and out of this sixty thousand the average per kiln is fifty thousand marketable tile or 80% to 85%. The annual production is about four million tile having an approximate value of $60,000.

GRADING AND SHIPPING

As the kilns are drawn, the tile are inspected and graded. The promenade tile are sorted into three grades, and each grade is sorted into three shades of color. The quarry tile are sorted into only two grades of three shades of color each. The first grade is sold entirely for flooring purposes.

The second grade is sold for roofing. In this grade are placed those tile in which there is a slight variation in dimensions, whose faces or edges are slightly marred or chipped, or whose color is not uniform.

The tile in the third grade are "seconds" and include all the remaining marketable tile in the kiln, such as those quite badly warped or out of true from hard firing near the bags or whose faces and edges have been marred by the sticking of the tile or the chipping produced in separating them. These are sold at reduced prices and are used mostly for garden paths or other purposes in landscape gardening as may be dictated by the taste or whim of the architect or owner.

For all shipping other than for export, the tile are packed in the cars in straw, much as face-brick are packed, the usual method of bracing with lumber being used to prevent the load from shifting while in transit.

For export, the tile must be crated, with paper between each tile and covering all edges. A crate 26 ins. long by 9 ins. deep and 12 ins. wide is used. One hundred and seventeen thousand tile were being crated in this fashion ready for an export shipment to Porto Rico when the writer visited this plant last October.

In order to be able to ship promptly, it is necessary in the tile business to carry a large stock of standard sizes. The Kushequa Keramic Company carries at all times in its stock sheds, a stock of the standard sizes of promenade and quarry tile valued at from $20,000 to $30,000.

Besides these standard sizes, this company also makes from time to time, special size and special shape tile on individual orders from architects who wish to get some particular effect not obtainable with stock sizes—a case in point being a large requisition for 6 in. by 12 in. tile for a residence in Florida, several of which were shown the writer as he completed with Mr. Blair the "rounds" of this most interesting plant.

The Washington Brick, Lime and Sewer Pipe Company, of Spokane, Wash., has completed the installation of its tenth thirty-foot down-shaft kiln at its plant near Spokane. The company has secured the contract for the terra-cotta to be used in the new Presbyterian Church at Missoula, Mont.

A Bar Room Paved with 6x9 Kusehqua Promenade Tile

The Last "Build With Brick" Signs

When the Present Stock on Hand is Gone No More Will be Ordered. More Than Thirty Thousand Have Been Sold at Cost

A YEAR SINCE (less a day) "Brick and Clay Record" made its first mention of the blue and white sheet steel signs that it was prepared to furnish brickmakers—signs bought at wholesale and distributed retail, at wholesale prices. In the July 21, 1914, issue, under the heading "The Great 'Brick' Slogan" these signs were illustrated in the same manner that they are shown on this page.

The number of these signs that has been sold runs well into five figures. The underlying principle of the blue and white sign was co-operation. The first idea, in connection with them was that they would not bear the name of the men who paid for them and who placed them where the public would read them, but simply carry the "Build with Brick" slogan from town to town, city to city, state to state—maybe coast to coast. Later, it developed that the movement would have but little success unless each individual was allowed to reap an immediate return through the adding of his name and his address to the sign.

Sign No. 1—Made of Sheet Steel, Letters Embossed in White on a Dark Blue Background. Size of Sign 27½ by 4⅞. Price 5 Cents Each

That last was a compromise, but since the form of the signs was the same, the object was preserved—a sign uniform in size, in color and in lettering—would be affixed by a great many different men and by their individual efforts made to form a big co-operative movement to call attention to the material that these many men were manufacturing.

Sign No. 2—Made of Sheet Steel, White Lettering Embossed. Individual Firm Name Stenciled in Black. Size of Sign 27½ by 6½. Price 6 Cents Each With an Extra Cost for Imprinting

Every co-operative movement which has merit receives the immediate support of a certain percentage of the men in the industry. Sometimes it seems that these men are those that were at the very top of the industry—the men who are making progress and making money, or, to be more exact, making money by making progress.

After they have come into a movement of this kind, those of their brothers-in-clay who are a little slower to take up a new idea and a little less accustomed to separating themselves from any of their dollars, come in because the argument is set before them so many times and in so many ways that they cannot resist it.

Later still, a few of the others who are just rising to the top of the profession—with their brains if not with their fortunes—come and help along the good cause and then, to carry out the simile, at the bottom of the well lies the sediment—the men who would not do anything which would not be guaranteed to give them an immediate return of at least dollar for dollar and a hope of something like a dollar and a dime for a dollar.

"Brick and Clay Record" has sold these sheet steel signs for a year, without profit and without any hope of doing anything but aid the brickmakers of the nation to bring their product before the eyes of the public.

"Brick and Clay Record" has devoted a great deal of its editorial space and even more of its advertising space to the sale of these signs and now, at the end of a year, feels that it has done enough on this particular line.

So, as a sort of "last call," it puts the issue squarely up to the brickmakers. There is on hand five hundred of the "Sign No. 1" type, of which an illustration is shown, and about eleven hundred of the "Sign No. 2" type, also illustrated.

The price upon these having been practically cost in the first place, will not be reduced, but the announcement is here made that after the signs which we have on hand are sold, we will not order any others. If you desire to use any of these "Build with Brick" signs—*now is the time to get them.*

Questions and Answers

Here Are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Analysis in Sand-Lime Brick Manufacture

680. *Quebec—We manufacture a sand-lime brick, and as I found it advisable to analyze the mixture during the process of manufacture and also to analyze the finished brick for the calcium content, I shall be glad if you will give me a few pointers on the subject or refer me to the suitable text books. I may say that I have Treadwell's "Analytical Chemistry" but the process therein described appears to me to be more suitable for the laboratory than for a factory. I presume that the process to be continuous should be that of titration as precipitation is much too slow a system. I should like also to be in a position to analyze the lime (CaO) for $CaCo_3$ from time to time as deemed advisable. I want to know just how to make up my normal solutions of hydrochloric acid (HCl) and sodium hydrate (NaOH) and the method of calculating the percentage of the carbonate and oxide after titration. This would be very valuable information both to myself and, no doubt, many of your readers; any light on the subject would be heartily welcomed.*

E. T. Montgomery, E. M. in Cer., of Alfred, N. Y., says that the best method for the rapid determination of calcium by titration process is that which is given on pages 22 and 23 and following of "Notes on Metallurgical Analysis," by N. W. Lord, formerly Professor of Metallurgy at the Ohio State University. He suggests that our correspondent will have no difficulty in securing this text, although it was written in 1903. Hann and Adair, of Columbus, Ohio, are the publishers and printers.

For the examination of the lime, Professor Montgomery suggests the use of Schroetter's Alkalimeter which is catalogued by Eimer & Amend, of New York City, as Alkalimeter No. 1752. Eimer & Amend should be able to give a description of the use of this Alkalimeter or give a reference to some text book which discusses its use, but if our correspondent finds it impossible to obtain anything of this kind, Professor Montgomery states that he will be willing to give him a detailed statement relative thereto.

We are, of course, assuming that in our correspondent's examination of the lime which he is buying as one of the raw materials, he desires to ascertain only the CO_2 content which is, of course, the measure of the amount of either $CaCo_2$ or $MgCO_3$ present.

As far as determining the calcium content of the mortar or raw mix is concerned, it would seem that the examination of the lime would be sufficient unless our correspondent is seeking to ascertain whether all of the CaO in the mortar has been completely hydrated. In the second place, the calcium in his finished product exists in three different forms—that of calcium silicates, some calcium carbonate and some uncombined calcium hydrate. We do not understand where he will derive any benefit from determining the total calcium in the finished product as the amount which has entered into combination as a silicate is a measure of the efficiency of his hardening process.

Technologic Paper No. 16 by W. E. Emley from the U. S. Bureau of Standards at Washington, D. C., will prove of value to this correspondent as will also Bulletin No. 18 on "Sand-Lime Brick" from the Geological Survey of Illinois at Urbana, Ill.

Economy of Mining Certain Clay

690. *Pennsylvania—We are considering the construction of a new plant and the matter is now in the hands of engineers and we are awaiting their final report. The matter most seriously under discussion in regard to our starting the brick plant at ————, is the mining of clay. The clay vein at this point lies under the "B" seam of coal which is about 160 feet below the surface. We are mining coal and are taking it out through a shaft opening. The coal above is about 3 feet 6 inches in thickness and directly under the coal seam there is about 18 inches of bony coal, and under this from 18 inches to 2 feet of bastard clay; then comes the main clay bench, which is about 6 to 8 feet in thickness. The latter is of the fire-clay character and makes a very nice gray building brick. You will see by the above figures that in order to get out the coal, we do not necessarily have to excavate to the main clay bench. Therefore, in the event of our mining the clay, we would, of necessity, be obliged to remove the clay and the portion of bastard clay and the bony clay from the top of it. This will add to the cost of the clay mining. We are not entirely satisfied as to what the cost of mining the clay will be. We have figured it down to about 50 cents per gross ton on top of the ground or at the top of the tipple. Our object in stating the above points to you is to ascertain whether or not you would be in position to give us any information as to whether this clay cost is or is not, relatively high, or be able to direct us to some one who, in your opinion, would have the knowledge we are seeking.*

The cost of your clay (50 cents per gross ton on top of the ground or at the tipple) is equivalent to a cost of $1.77 per M. brick and this is relatively high. It should be possible for you to get some data from manufacturers of brick similar to the kind of brick which you intend to produce and who are operating in the same district. The difference between the amount that their clay costs them per M. brick and the $1.77 which you know will be your cost, is the amount of the handicap under which you will start. It has been our experience that clay delivered in the manner that you suggest—at the end or top of the coal mine shaft, is very apt to be an expensive proposition in another way; that is the extreme liability of different grades of clay being delivered to the tipple and accidentally or carelessly mixed. It is, to a great extent, the proposition of building a plant for the purpose of economically producing one product and afterward trying to make the same plant economically produce something else. Theoretically it should do it, but in actual practice it seldom does.

We would strongly urge your taking your proposition to one of the men who will, if you go into the brick business, be a competitor; if he be a man of breadth, he will give you real information—not with the idea of discouraging you in your enterprise but to prevent the erection of a plant that is destined to failure and consequent transfer to inexpert people, who will continue to operate it at a loss, making inferior ware and underselling the market.

Putting an "Ironspot" on a Red Brick

677. *Texas—Will you please give us information as to where we can get the material to give a mottled iron effect to red brick? We make a face-brick only.*

Volume VI of the Transactions of the American Ceramic Society (1904) contains a very exhaustive paper on the subject, by Lawrence E. Barringer, E. M. (in Cer.), in which he obtained this effect by the use of pyrolusite. This material may be obtained, we are quite certain, from concerns that deal in chemicals for ceramic use.

Volume VI of the Transactions can be obtained by writing to Edward Orton, Jr., Columbus, Ohio. The price is $4.00 bound in paper, or $4.75, bound in cloth.

Comparative Cost of Coal and Oil Fuel

683. *South Dakota—Where can I get the best information relative to the cost of burning oil in place of coal for brick and building blocks? I want to know the cost per M. of burning petroleum tailings as compared to the cost of coal at $4.00 per ton.*

We are advised by an authority on the subject of oil that it is good practice to figure 126 gallons of fuel-oil as being equal to a ton of average quality coal. Fuel-oil costs about 1¾ cents per gallon at the refinery and as the freight rate from the nearest refinery to your plant would be between forty and forty-five cents per cwt. this would make the fuel oil cost you something like 4¾ cents per gallon. At this rate 126 gallons of oil would cost you about $6. Coal at $4 per ton would be very much cheaper. We note your use of the term "petroleum tailings" and wish to explain that this is only another name for fuel-oil. It was, we understand, used by some Oklahoma refineries for the purpose of securing a better freight rate than was given fuel-oil, but the Interstate Commerce Commission has ruled against this lower rate and Oklahoma "petroleum tailings" are again fuel-oil—as they always were in everything but name.

Correcting an Error

On page 31 of the July 6 issue, an answer was printed to a question asked by an Indiana correspondent. It had to do with an attachment for the making of rough surfaced face-brick, and suggested the use of taut wires. Through an error, a part of the fourth, fifth and sixth lines from the bottom were made to read, "It is well to space the wires so that the vertical wires are at least ¼ of an inch away from each other." This should have read, "It is well to space the vertical wires ¼ of an inch in front (or behind) the horizontal wire."

The Manufacture of Silica Brick

685. *Pennsylvania—Will you please tell me where I could get a book about lime-bond silica brick—about making and burning it?*

T. E. Montgomery, E. M. (in Cer.) of Alfred, New York, in an article published in "Brick and Clay Record," in May, 1914, has this to say about the manufacture of silica brick:

In the development of the siliceous refractories industry, an unfortunate confusion of names has arisen. This is partly due to the fact that from the beginning of the industry two different binding materials have been used, viz.: lime and fire clay. The name "Dinas" was first used in the beginning of the 19th century by a Mr. Weston Young, who worked the siliceous materials of the Dinasfels of Wales into brick, using as a bond the underlying cretaceous lime. This process was kept a secret by the Young family until the middle of the century, and in the meantime another siliceous brick was put on the market in England, which was made by grinding and mixing the gannister rock of Sheffield with fire clay. This was called "Gannister" brick, and the name is still generally applied in England to such siliceous brick bonded with clay. The Germans soon began the manufacture of a clay bonded silica brick and called it "German Dinas," so we have in Europe the term "Dinas" applied to both lime and clay bonded silica brick. In this country we have never used the term Dinas. High grade silica brick bonded with lime are called "Silica," and the term "Quartzite" and "Gannister" have been applied to different grades of clay bonded brick.

In the manufacture of silica brick the best results have been obtained in the use of sedimentary sandstones and quartzites containing about 97 per cent of silica and 3 per cent of impurities. In the west, however, in Montana and Utah, crystalline quartz rocks are used. Attempts to use a too pure quartzite—99 per cent SiO_2—have not been successful. There is only one property or quality of major importance in selecting a material for the manufacture of silica brick, while there are two or three other minor ones. It must be remembered that silica brick expand on being burned in the process of manufacture, and are fired up to dimensions instead of shrinking to dimensions, as in the case of fire clay brick. It has been shown in testing different quartzites that they vary from 3.2 per cent to 23.5 per cent in volume increase in the first burn. The lowest figure of 3.2 per cent is for a very pure quartz, coarsely crystalline, which disintegrates to a fine powder on burning. The higher value of 23.5 per cent was for fine grained, hard, tough quartzites with about 3 per cent impurities and which remained firm and hard after burning. It is obvious that we want a material which does practically all of its expanding in the burning it gets before put into use. These quartzites which have a low volume increase in the first burn, change in volume slowly and continuously over a long period, and hence swell after being put in place in actual use.

The physical condition of the crushed material is also of importance. Round grained sand cannot be used, as it will not bond properly. Even sharp grained sand is not good, because the size of grain is too uniform. A rock which grinds to splinters and particles of irregular size, which overlap and interlock, makes a brick of the best structure.

According to the kind of brick being made, there is added to the crushed rock in making the mix, either 2 per cent of slaked lime or from 20 to 30 per cent of fire-clay. The batch is ground and tempered in a wet pan and then molded by hand in a brick mold by what is called the "slop molding" process, the excess material being cut off at the top of the mold by a scraper. The brick are then dried on a drying floor or rack until they are hard to dent with the finger, when they are repressed. After the brick are thoroughly dried they are set in the kilns and fired to temperatures varying all the way from cone 9 to cone 18 in different plants. The temperature used depends on that required by the material to properly develop the bond and to secure the necessary volume increase, i. e., to bring the volume changes as near as possible to a condition of equilibrium.

Silica brick are chemically acid and are used not only in positions where an acid brick is necessary, but are yearly finding many other uses due to their high refractoriness, regular expansion and heat diffusivity and ability to carry loads at high temperatures without deformation as long as these temperatures are at a safe interval below their melting point. Silica brick are used in connection with silica sand mass in acid open-hearth furnaces; they are largely used in crowns of by-product and bee-hive coke ovens; in the glass, iron and copper melting business; and in some places for boiler settings and fire box linings.

As we would expect from our knowledge of calcium silicates, silica brick have been found to have a well defined melting point. There is practically no softening or flow until the melting point has been reached, when it will suddenly fuse to a liquid of low viscosity. Mr. George Brown in load tests on silica brick made in the Bureau of Standards laboratory, has shown that they are not affected by the usual test of 50 pounds per square inch at 1,350 degs. C., nor even when the temperature was carried as high as 1,470 degs. C. This test was on a silica brick with lime binder.

A silica brick with clay binder showed a small deflection under load of 50 lbs. at 1,350 degs. Silica brick fuse or melt at about a temperature of 1,750 degs. C.

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

Believes Hollow Tile Needs Advertising

During the past months considerable space has been devoted in this journal to the subject of advertising clay products, especially for use on the farm. Much time and energy has been spent in endeavoring to place before the manufacturer of burned clay the rich field presented by the home builder and the farmer for the sale of his product.

The following letter from James J. Hinde of Cleveland, Ohio, is interesting inasmuch as it recites the personal convictions of a manufacturer of hollow tile with regard to the marketing of his product.

Judicious advertising is an important adjunct to any selling campaign for, no matter how good a proposition you may have, you will make little progress unless you are able to reach prospective customers with your story.

Although the use of hollow clay building tile on the farm has not been promoted nearly as much as drain tile, the former commodity offers the farmer many advantages in economy, durability and ability to increase profits. In days gone by when very large areas of our agricultural land were covered with virgin forests, it was a necessity that the farmer clear his land to make room for the plow and he was only too glad to cut the timber into a suitable size and shape for building purposes. Even though the buildings were only temporary structures at best, it required an excessive amount of repairs to make them at all suitable. It was then merely a question of getting rid of the timber in any possible manner that presented itself as it did not have sufficient value to pay the freight charges to distant markets. The writer well remembers, not forty years ago, cutting magnificent black walnut and wild cherry trees to make framing timbers for barns and other out buildings because it was easier to hew this species of wood than the harder oak, ash or hickory.

But now, sad to say, those farm lands are barren of timber and lumber has to be freighted such long distances that the carriage charges are about as high as the initial price of the wood, making it an extravagantly expensive building material. The up-keep and expense on farm buildings amounts to from three to four per cent annual, of their first cost. This, coupled with the extreme fire hazard on the farm because of the lack of fire-fighting apparatus, makes insurance rates on frame buildings very high as compared with those built of burned clay. The fact also that frame buildings are not nearly as warm in winter or cool in summer as those built of clay products, makes lumber a very poor material for use in the construction of farm buildings.

But in this—the use of hollow tile for farm buildings—like the drain tile situation, the manufacturer has been woefully lacking in acquainting the farmer with the advantages of his product. Any of the out buildings on the farm, such as barns, stables, silos, refrigerators, milk house, ice house, heneries or hog houses, can better and more economically be built of hollow burned clay tile than any other material, because the building will be warm and dry in the winter, and cool and dry in the summer, to a greater degree than a building built of any other material. The floors of out buildings in which live stock are housed can be made ideal if hollow tile is used in their construction. They will then be very much dryer and warmer and actually cost less than a solid concrete floor.

All of the leading agricultural colleges of the country recommend hollow burned clay silos as affording better insulation than if made of any other material. Hollow tile makes a frost-proof, moisture-proof, fire-proof, acid-proof, storm-proof and time-proof silo, all of which are essential features in the construction of this type of farm building, advantages which cannot be justly claimed of a silo built of any other material.

The foregoing applies to floors, foundations and side walls of farm buildings, but equal to these and if not more important, is the roof which is the part of the building most exposed to the elements. Engineers and architects are unanimous in the opinion that burned clay is the only everlasting roof material and, even though somewhat more expensive in first cost than other substitutes, it will be much cheaper in the long run. As the roof of a building forms such a prominent feature, it is always well to see that it is suitably artistic and there is no roofing material that lends itself so well to general adornment as burned clay shingles.

Manufacturers of burned clay, however, should not allow the fact that their material is the best, lead them to think that all they need to do is to make it and that it will sell itself. Experience has proven that this is far from being the case. The methods to be pursued in the sale of a product should be well determined upon before the manufacture of that product is begun. A consistent selling campaign should be inaugurated with the turning of the first wheel in the factory and such a campaign constantly maintained. Printers' ink is a powerful selling agent if properly made use of and can be made to cheapen the cost of distribution over any other method, if well studied out.

Mr. Hinde's statements form a valuable addition to all that has been said with regard to the need of more publicity for burned clay on the farm. Like no other period, the present year has demonstrated to manufacturers of hollow tile the desirability of extending their market to include the farmer who, at the present time, has more money to spend than any other citizen. If the development of his business had been carried on more consistently during the past few years, the curtailment of the clay products market from other directions would have had little affect upon the volume of production and sales like it has in many quarters at the present time.

Fritz Salmen to Build Silos

Those of the brickmakers who went to the New Orleans convention of the N. B. M. A. will remember the extensive plant of the Salmen Brick and Lumber Company at Slidell, La. Not content with the many activities that are already established at the point, Mr. Salmen intends to—but let him tell it himself:

I thank you very much for the detailed information furnished us in your favor of the 25th regarding the construction of silos with hollow tile. According to your directions I have written the Agricultural Experiment Station at Ames, Iowa, for full particulars. We have gone into the live stock business and expect to build several silos, and would like to use our hollow blocks in their construction. Any time I can be of service to you gentlemen, please command me. In the meantime I beg to remain, Yours truly,

F. Salmen.

The suggestion that was made to Mr. Salmen is one that every clayworker interested in silos should follow —that he write for the very valuable information that is being distributed by the authorities at Ames, Iowa.

Notes Changes in "Brick and Clay Record"

Without attempting to quote Scripture, we will call attention to the fact that the Good Book says something about there being more joy in reforming a backslider than in the constant and consistent well doing of one who has never sinned. Read what George L. Cherry of the P. L. Cherry Company says about this magazine. He writes under date of June 26:

We wish to thank you for the sample copies of your magazine that you recently sent us. We subscribed to "Brick and Clay Record" several years ago and after the year's subscription had elapsed, we decided that as we were not clay manufacturers, and only jobbers, that it was entirely a magazine for the manufacturer. We see, however, from reading your sample copies that conditions are somewhat changed and that you are taking up the selling end as well as manufacturing and will remember this and place our subscription with you as soon as conditions warrant it. Your article on page 1135 of the June 15 number, "Advice on Buying Face Brick," is exceedingly good and if you would care to give your permission we would like to have a reprint of this to send out in our direct advertising.

We will be glad to have Mr. Cherry or any other reader use the article mentioned, or anything else that appears in our pages which is not distinctly copyrighted.

With the Potteries

It is generally conceded among pottery manufacturers that the action of the National Brotherhood of Operative Potters in a recent convention at Atlantic City, in voting down a resolution after several hours' debate, which sought a ten per cent general advance in wages, stays all probable labor troubles in the domestic pottery business for two years at least. This opinion has been expressed by a number of general ware manufacturers in the western district. Before the convention assembled, the manufacturers were in the dark as to what the delegates would do, and that a general advance of ten per cent was desired by some was never intimated.

After a summer vacation all western potteries have resumed operations and the outlook for both early and late fall business was never more encouraging. While it is admitted that retail and jobbing stocks are exceptionally low, buyers, if they place regular business, will scatter enough orders to insure the steady operations of all general ware plants. Stocks in pottery warehouses are not extensive, and the demand for plain white ware this season is the lowest in years.

The annual meeting of the Colonial Pottery Company, of East Liverpool, Ohio, will be held early in August. George W. Meredith, of Pittsburgh, Pa., will be re-elected president of the corporation. This plant is now under the management of C. L. Gray, formerly general manager of the Pennsylvania China Company, of Kittanning, Pa.

Electric porcelain plants in the East Liverpool and Ohio Valley districts are doing more business now than for months. It is asserted that large electric concerns have been backward in buying this season, and that the construction of new electric lines has been less extended this year than previously. The plants manufacturing the high tension pieces are doing a good business and are now operating to capacity.

Manager Raymond, of the Raymond Pottery Works, San Jose, Cal., which makes a specialty of manufacturing flower pots for California nurseries, reports that the present business is very fair and that the demand is now improving rapidly, as the nurseries are beginning to buy in anticipation of putting up stock for the holidays.

The Shenango Pottery Company, of New Castle, Pa., has just completed additions to its plant which will increase the annual production about forty per cent. Additional machinery has been installed in the clay shops, and the decorating department has also been enlarged.

Potteries in the vicinity of Sebring, Ohio, are the busiest of any in the western district. The Sebring Pottery Company is now building an additional kiln.

Freight Tariffs and Troubles

Devoted to Information and Advice on Freight Tariffs and on Cases Before the Interstate Commerce Commission

IN the rougher forms of clay products—brick, tile and hollow block—the cost of freight transportation is a large item of expense. A preferential freight rate opens or closes a market, despite every cost-saving process that may enter into the manufacture of the ware. "Brick and Clay Record" gives its readers a valuable service, through this department, in publishing in convenient form, the changes in freight rates on brick (common, pressed, enameled and fire), hollow tile and the like. These freight changes should be closely followed, as any one of them may affect your market or your selling price. In addition to this, Irwin W. Preetorius, Freight Traffic Counselor for this magazine, will check freight expense bills without making any charge for the service, and will point out overcharges, wrong routings and other points that have been adding expense to your carrying charges in the past. He will also give advice as to the proper way of filing complaints before the Interstate Commerce Commission.

A SIGNAL VICTORY has been won by shippers in the decision handed down recently by the Interstate Commerce Commission on car "spotting" charges. Several brick companies were represented by council in this case. The commission found that tariffs proposing a "spotting" charge for placing cars at points mentioned in the tariffs, were not justified. The commission further stated that, while it has from time to time called the atention of the carriers to the possibility of increased revenues from certain sources and has suggested that it might be that the carriers ought to make a charge in addition to the line haul rate for some services in connection with the movement of cars within industrial plants for which no additional charge is now made, it has never intended to suggest that an additional charge would be proper for services which by long continued general custom and usage. have been treated as covered by the line haul rate.

A WARNING TO SHIPPERS

The Interstate Commerce Commission has formally decided that when a shipper has attempted to adjust a claim against a railroad company through an informal procedure and the carrier refuses to adjust the dispute to the satisfaction of the shipper, the latter must then file a formal complaint with the commission within a period of six months after they have been advised that the carrier has refused to entertain an informal complaint.

It has been the case with a great many shippers that after a complaint has been refused by the carrier, through an informal procedure, an unreasonable length of time has been allowed to elapse before filing a formal complaint with the commission. This practice has been so much abused and delays in filing complaints have been so long and so numerous, that the commission positively refuses to hear any more such cases unless filed within the six months limitation.

Manufacturers and shippers of clay products are therefore warned that unless formal complaints are entered within the period allotted by the commission, no attention will be given the complainant's case.

COMPLAINTS

Unreasonable rates on brick are complained of by the Decatur Brick Company, of Decatur, Ill., in a complaint recently filed by that company against the Illinois Central Railroad and thirty other carriers. The brick company states that the rates on its products to points in Michigan, Wisconsin and Indiana are unjust and unreasonable, and are a source of much loss and damage in the conduct of its business. A hearing has been asked, as has also an investigation of the rates now in effect, with a view toward establishing new rates.

Brick manufacturers and other interested industries have filed a complaint with the Denver (Col.) State Public Utilities Commission, asking that the present freight switching rate of 25 and 20 cents a ton to Denver be reduced to eight or ten cents a ton. The complaint states that Denver firms are paying from two to five times as much for switching as do business concerns in other cities. The brick manufacturers, however, are said to be the principal sufferers under present conditions. They have to pay twenty cents a ton switching charges when their clay is hauled in and then another twenty cents a ton for switching the coal used in burning the brick, and later they pay the third switching charge of twenty cents a ton to get the brick out of their plant. The complaint also states that switching charges should be especially low in Denver inasmuch as the land used for terminal purposes is level, allowing one locomotive to haul a long string of cars.

SUSPENSIONS

The commission has suspended until January 8, 1916, the operation of Chicago and Eastern Illinois Railroad Company's supplement No. 20 to I. C. C. No. 2465, and Cleveland, Cincinnati, Chicago and St. Louis Railroad Company's supplement No. 6 to I. C. C. No. 6205, which provide for the withdrawal of commodity rates on drain tile in carloads from St. Anne and other points in Illinois to various points in the states of Wisconsin, Minnesota and Michigan. The above mentioned tariffs have already been suspended twice for various periods, and as herein stated, are again declared inoperative for a further period.

REPARATIONS

The National Fire Proofing Company vs. Pennsylvania Railroad Company, $5.17.

Moore and Munger vs. Southern Railway Company, $221.42.

Fredonia Brick Company vs. Missouri Pacific Railroad Company, $6.25.

National Fire Proofing Company vs. Chicago, Rock Island and Pacific Railway Company, $163.82.

Universal Clay Company vs. the Atchison, Topeka and Santa Fe Railroad Company, $4.77.

Hydraulic Press Brick Company vs. Pennsylvania Railroad Company, $44.52.

Changes in Freight Rates

Since our last issue, the following freight tariffs affecting clay products have become effective:

FROM EASTERN POINTS

From Allentown, Pa., all kinds of brick (except enameled), fireproofing and hollow building tile, to Scranton, Pa., $1.26 per net ton.

From Baltimore, Md., imported clay, to Covington, Va., 10.5c per cwt.

From Beech Creek, Krebs, Orviston, Woodland, Irvona, Clymer, Bigler and Karthaus, Pa., brick and articles taking the same rates, to Bedford, Eastman, St. Johns, and Windsor Mills, Que., $4.15 per net ton; to Bordeaux and Jacques Cartier Jct., Que., $3.75 per net ton; to Radnor, Que., $4.20 per net ton; to St. John, St. Stephen and Woodstock, N. B., $4.75 per net ton.

From Brownstone, Pa., common, vitrified and paving brick, to Duncansville, Pa., $1.84 per net ton; to Roaring Spring, Pa., $1.89 per net ton.

From Buckeystown, Md., brick, to Staunton, Va., $2.00 per net ton.

From Buffalo, Buffalo Junction and East Buffalo, N. Y., brick and articles taking the same rates, to Sandusky, Ohio, $1.58 per net ton.

From Elmira and Horseheads, N. Y., all kinds of brick (except enameled), fireproofing and hollow building tile, to Albany, N. Y., $1.58 per net ton; to Scranton, Pa., $1.32 per net ton.

From Exton, Pa., silica brick, to Pottstown, Pa., 90c per net ton.

From Kushequa, Pa., common, hollow and pressed brick, to Fredonia, N. Y., $1.32 per net ton.

From Orchard Park and Jewettville, N. Y., brick and clay products, to Dunnville, Ont., $1.42 per net ton.

From Penbryn and Winslow Junction, N. J., silica brick. to Gettysburg, Pa., $1.58 per net ton.

From Pittsburgh, Pa., brick, to Deseronto and Peterboro, Ont., $3.58 per net ton; to Hamilton, Ont., $2.63 per net ton; to Montreal, Que., $3.90 per net ton; to Oshawa, Ont., $3.21 per net ton; to Quebec, Ont., $4.90 per net ton; to Thorold, Ont., $2.43 per net ton; to Toronto, Ont., $2.86 per net ton; to Wallaceburg, Ont., $2.73 per net ton; to Welland, Ont., $2.38 per net ton.

From South Wilkes-Barre and Wilkes-Barre, Pa., all kinds of brick (except enameled), fireproofing and hollow building tile, to Binghamton, N. Y., $1.58 per net ton; to Carbondale, Pa., $1.05 per net ton.

From Spring Garden Junction, Pa., all kinds of brick (except enameled), fireproofing and hollow building tile, to Albany, N. Y., $2.10 per net ton; to Plymouth and Scranton, Pa., $1.32 per net ton.

FROM MIDDLE WEST POINTS

From Alton and Alton Summit, Ill., brick and articles taking the same rates, to St. Louis, Mo., 40c per net ton.

From Ashtabula and Conneaut, Ohio, brick and articles taking the same rates, to Hillsdale, Mich., $1.58 per net ton; to Wilmington, Ohio, $1.72 per net ton.

From Ashtabula and Conneaut, Ohio, brick and articles taking the same rates, to Sandusky, Ohio, $1.15 per net ton.

From Bloomingdale, Hillsdale, Hollowell and Melcher, Ind., brick and clay products, to Hamilton, Ill., Camanche, Davenport and Dubuque, Ia., $1.60 per net ton; to Harvey, Ill., 95c per net ton; to Watseka and Wellington, Ill., 79c per net ton; to Taylorville, Ill., 84c per net ton; to Warsaw, Ill., $1.26 per net ton; to Benton, Ill., $1.16 per net ton.

From Chaska, Minn., brick, to Oakes, N. D., 11c per cwt.

From Chicago, Ill., and Racine, Wis., enameled brick, to Manitowoc, Fond du Lac, Oshkosh, Marshfield and Eau Claire, Wis., 13c per cwt.; to Rhinelander, Wis., and Ironwood, Mich., 16c per cwt.

From Chicago, Stony Island and Burnham, Ill., and Hammond, Osborn and Hobart, Ind., brick and articles taking the same rates, to Sandusky, Ohio, $1.68 per net ton.

From Chicago, Joliet, Lemont and Willow Springs, Ill., brick and articles taking the same rates, to St. Louis, Mo., $1.48 per net ton.

From Coal City and Streator, Ill., brick and articles taking the same rates, to St. Louis, Mo., $1.36 per net ton.

From Detroit, Delray and West Detroit, Mich., brick and articles taking the same rates, to Chapman, Monroe, Newport, Rockwood, Sibley and Trenton, Mich., 63c per net ton; to Cousino and Vienna, Mich., and Lang and Toledo, Ohio, 74c per net ton; to Ecorse and Wyandotte, Mich., 42c per net ton.

From Lorain, South Lorain, Cleveland and Wickliffe, Ohio, brick and articles taking the sames rates, to Sandusky, Ohio, 95c per net ton.

From Milwaukee, Wis., enameled brick, to Marshfield and Eau Claire, Wis., 13c per cwt.; to Rhinelander, Wis., and Ironwood, Mich., 16c per cwt.

From Menomonie, Wis., brick (except bath or enameled) and articles taking the same rates, to E. St. Louis, Ill., and St. Louis, Mo., 10.5c per cwt.

From Peoria, Ill., brick and articles taking the same rates, to St. Louis, Mo., $1.16 per net ton.

From Springfield, Ill., brick and articles taking the same rates to St. Louis, Mo., 89c per net ton.

From Toledo, Ohio, brick and articles taking the same rates, to Chapman, Delray, Detroit, Newport, Rockwood, Sibley, Trenton, West Detroit and Wyandotte, Mich., 74c per net ton; to Ecorse, Cousino, Monroe and Vienna, Mich., 58c per net ton.

From Toledo, Ohio, brick and articles taking the same rates, to Springfield, Ill., $2.19 per net ton.

From Whitehall, Ill., brick and articles taking the same rates to St. Louis, Mo., 83c per net ton.

FROM WESTERN POINTS

From Berkeley, Oakland, Emeryville and San Francisco, Cal., conduits, clay chimney pipe, sewer-pipe and drain tile, to Los Angeles, Cal., 17½c per cwt.

From Des Moines, Ia., brick, to Gordonsville, Glenville and Albert Lea, Minn., 8c per cwt.

From Des Moines, Ia., drain tile, to Gordonsville, Glenville and Albert Lea, Minn., 9c per cwt.

From Fulton, Mo., brick and articles taking the same rates, to St. Louis, Mo., $1.00 per net ton.

From Fulton, Mo., fire clay, to St. Louis, Mo., 90c per net ton.

From Mason City and Rockford, Ia., drain tile, to Gordonsville, Glenville and Albert Lea, Minn., 4.5c per cwt.

From Mason City and Rockford, Ia., brick, to Gordonsville, Glenville and Albert Lea, Minn., 3.8c per cwt.

From Mexico, Mo., brick and articles taking the same rates, to St. Louis, Mo., $1.80 per net ton.

From Pueblo, Colorado, fire-brick, fire-clay and common-brick, in mixed carloads, to Trinidad, Colorado, 6.5c per cwt.

From Sand Point, Idaho, common-brick, to Fernia, B. C., 7c per cwt.; to Michel, B. C., 8c per cwt.

From Texarkana, Ark-Tex., pipe, brick, clay, conduits, coping and tile, to Bannister, Fayette, Insco, Longville, Ragley, Sweetville and Vandercook, La., 20c per cwt.

From Vandalia, Mo., brick and articles taking the same rates, to St. Louis, Mo., 80c per net ton.

FROM SOUTHERN POINTS

From Ashland, Ky., brick, to New Straitsville, Ohio, $1.15 per net ton.

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Boiler Scale (Kent)

Causes of Incrustation

1. Deposition of suspended matter.
2. Deposition of deposed salts from concentration.
3. Deposition of carbonates of lime and magnesia by boiling off carbonic acid, which holds them in solution.
4. Deposition of sulphates of lime, because sulphate of lime is but slightly soluble in cold water, less soluble in hot water, insoluble above 270° F.
5. Deposition of magnesia, because magnesium salts decompose at high temperature.
6. Deposition of lime soap, iron soap, etc., formed by saponification of grease.

Means for Preventing Incrustation

1. Filtration.
2. Blowing off.
3. Use of internal collecting apparatus or devices for directing the circulation.
4. Heating feed-water.
5. Chemical or other treatment of water in boiler.
6. Introduction of zinc into boiler.
7. Chemical treatment of water outside of boiler.

IN TABULAR FORM.

Troublesome Substance	Trouble	Remedy or Palliation
Sediment, mud, clay, etc.	Incrustation.	Filtration; blowing off.
Readily soluble salts.	Incrustation.	Blowing off.
Bicarbonates of lime, magnesia, iron.	Incrustation.	Heating feed. Addition of caustic soda, lime, or magnesia, etc.
Sulphate of lime.	Incrustation.	Addition of carb. soda, barium hydrate, etc.
Chloride and sulphate of magnesium.	Corrosion.	Addition of carbonate of soda, etc.
Carbonate of soda in large amounts.	Priming.	Addition of barium chloride, etc.
Acid (in mine waters).	Corrosion.	Alkali.
Dissolved carbonic acid and oxygen.	Corrosion.	Feed milk of lime to the boiler, to form a thin internal coating.
Grease (from condensed water).	Corrosion or incrustation.	Different cases require different remedies. Consult a specialist on the subject.
Organic matter (sewage).	Priming, corrosion or incrustation.	

The mineral matters causing the most troublesome boiler-scales are bicarbonates and sulphates of lime and magnesia, oxides of iron and alumina, and silica.

Many substances have been added with the idea of causing chemical action which will prevent boiler-scale. As a general rule, these do more harm than good, for a boiler is one of the worst possible places in which to carry on chemical reaction, where it nearly always causes more or less corrosion of the metal, and is liable to cause dangerous explosions.

In cases where water containing large amounts of total solid residue is necessarily used, a heavy petroleum oil, free from tar or wax, which is not acted upon by acids or alkalies, not having sufficient wax in it to cause saponification, and which has a vaporizing-point at nearly 600° F., will give the best results in preventing boiler-scale. Its action is to form a thin greasy film over the boiler linings, protecting them largely from the action of acids in the water and greasing the sediment which is formed, thus preventing the formation of scale and keeping the solid residue from the evaporation of the water in such a plastic suspended condition that it can be easily ejected from the boiler by the process of "blowing off." If the water is not blown off sufficiently often this sediment forms into a "putty" that will necessitate cleaning the boilers. Any boiler using bad water should be blown off every twelve hours.

Depreciation

In every system of cost accounting, the item of depreciation has a way of cropping up and demanding attention. What is depreciation? You remember the definition of the words "actual cash value" as used in the fire-insurance policy—that has some bearing upon depreciation, and serves, in a way, to tell how it should be figured.

"Actual cash value" means the amount that the machine or building would cost to replace *new and up-to-date,* less a proper allowance for wear and tear.

Depreciation should be figured with that in mind. Depreciation figures should not be based on the selling value of machine or building, but upon what it would cost to replace it, *new and up-to-date.*

Some men say that the moment you install a machine, and use it for a day, it becomes "second-hand" and would not bring more than half of its purchase price, if the owner were compelled to sell it at once. According to that, the depreciation is fifty per cent for the first day. That is wrong.

Two elements properly enter into depreciation—the amount of wear to which the machine or building has been subjected, and the age of the model. Strange as it may seem, every time a machinery concern brings out a "new model" cutter, or brick machine or pug-mill (always providing that it does more work with less power than the model you own), the fact that the new machine is on the market makes the depreciation on your machine greater, or, rather, the "actual cash value" less.

You would understand that, in the case of an automobile—try to understand it as you make up your statement of assets and liabilities and come to the place where you are ready to list your equipment.

The Care and Use of Wire Rope

Wire rope is as pliable as new hemp rope of the same strength, and will run over the same size pulleys, sheaves and drums. But the greater the diameter of the sheaves, pulleys and drums, the longer the wire rope will last.

Consult the manufacturer to determine the size of drum to be used.

The wear on wire rope increases with the speed, and it is therefore better to increase the load than the speed.

To preserve wire rope, apply raw linseed oil, or mix the oil with equal parts of lamp black.

To preserve wire rope under water or under ground, apply the following compound: Take one barrel of mineral or vegetable tar, and add one bushel of fresh slacked lime to neutralize the acid; boil this mixture and apply hot to the cables.

The Stock Room

It is impossible to insist too strenuously on the keeping of a well-stocked supply room.

Clay plants are usually situated in the country, where needed parts can not be obtained at a moment's notice, yet the plant may be tied up tight, shut down for hours, because one small part had broken or worn out.

Keep a stock of packing, gauge glasses, oil cups, babbitt, gears that wear out fast, elevator buckets and bolts, screen plates, muller plates, screen wires, files, hack saws, pug mill knives, augers—and a hundred other parts that may be needed at any time.

The good superintendent is the man who looks beyond today, and anticipates ninety per cent of the breaks, and is ready with replacements before they are needed, or at least the minute the weak part gives way.

Application of Separate Power to Each Pan System

On all plants having a battery of more than one dry pan, it is an excellent plan to equip each pan and the accessory machinery with one individual motor, or other drive. For example, the clay conveyor from storage, the dry pan, the elevator and screen, might be driven from one independent source of power.

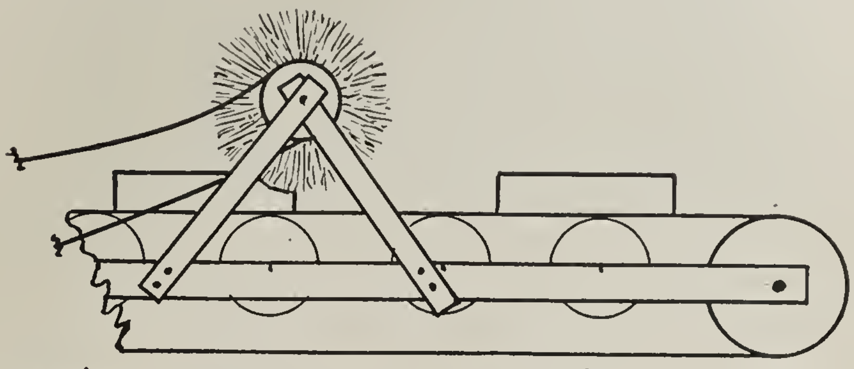
The many advantages are obvious, the chief one being that when one part stops, all in that unit stop, while the balance of the pans continue in operation.

Cleaning Repressed Brick

In making high-grade repressed face-brick, an objectionable film of thin clay sticks up around the edge of the brick. This is caused by the wet, stiff clay squeezing and curling up between the sides of die box and upper plunger, when pressure is applied to the brick.

A large part of this falls off in handling and burning, but some invariably remains and comes through the burning process intact, spoiling edges and often carrying chips from the face of the brick when the feather is chipped off after burning.

A simple and ingenious method is to install, over the off-bearing belt of the repress, a roller brush, as indicated. The brush is made of soft bristles, and mounted firmly on the belt carrier frame, at just a sufficient height above brick so that as the brick pass from the machine, the rotating brush cleans away all excess clay. The brush is driven by chain and sprocket wheel from a shaft on the machine.



Rotating brush on Repress-offbearing belt.

Babbitt Metal

The practice of lining journal boxes with babbitt metal is not always as much for the purpose of securing lessened friction, as it is for securing perfect alignment between the shaft bedding and the shaft.

Boxes can be bored, but no matter how accurately done, it requires great skill to fit them to shaft and to frame of machine.

It is not good practice to use the shaft for the purpose of casting the bearings, especially if the shaft is of steel; the hot metal is liable to cause a warp in the shaft. It is better to use a mandril of the same size as shaft or a little larger.

Gravity

It is a wise superintendent who plans to use gravity wherever possible, in the handling of raw clay.

Gravity should be used especially between clay car and elevator boot and many schemes can be worked out on each plant whereby this cheapest form of power and movement can be utilized to the best advantage, and horizontal movement eliminated in part.

Gravity, intelligently used, saves in equipment, upkeep, power and "shut-downs."

Kiln Floor Bottoms

The deeper the floor, or under-flue work of down draft kilns, the better the chance for burning hard brick clear to and through the bottom courses. Shallow bottoms invariably produce soft floor brick, unless excess time and fuel are spent in burning.

Bottoms are best when three or four feet deep, and have the added advantage of not needing a cleaning as often as one which is not as deep.

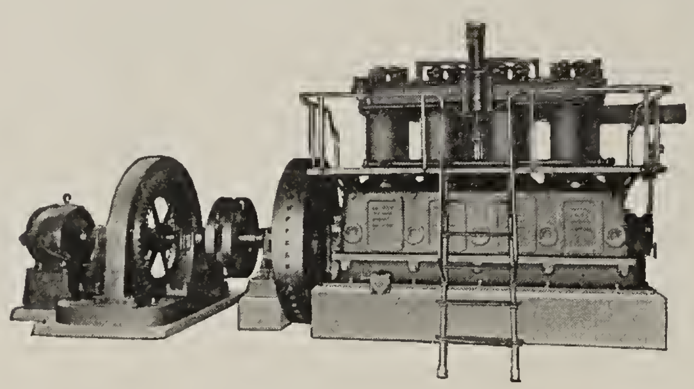
Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

Gas Power

Power is a factor which affords an opportunity for reducing the cost of manufacture in many clayworking plants.

It is a well-known fact that gas power is the most economical form of power, with the exception of water power and some other methods which are not generally available or practicable for manufacturing purposes. A gas power plant can be operated at from 25 to 75 per cent less than a steam engine plant and in most localities is far cheaper than purchasing current from a central station company.



Bruce-Macbeth Gas Engine

During recent years, standard, high-grade makes of gas engines have attained a point of development where they are regarded as of the highest reliability and efficiency, and they are now in universal use among the largest and most successful manufacturing concerns in all lines.

In addition to the decided economy of a gas power plant, it has many other advantages, among which are the fact that it occupies a small amount of floor space, requires minimum fuel space, is clean and smokeless, and can be operated with minimum attendance.

The Bruce-Macbeth vertical, multi-cylinder gas engine, manufactured by The Bruce-Macbeth Engine Company, 2134 Center St., N. W., Cleveland, which is now advertised in this paper, is one of the highest grade engines on the market. It has the very best standing among the trade, and is in extensive use among the largest and most exacting power users. Bruce-Macbeth engines were selected by The East Ohio Gas Company, Cleveland, for their new office and exhibition building, the engine room of which it was their express purpose to make an ideal gas power plant engine room in every detail.

Among recent Bruce-Macbeth gas engine installations in the clayworking and allied industries are the following:

Farr Brick Company, Cleveland	18 H.P. 15 H.P.
Delaware Blue Limestone Quarries Company, Delaware, Ohio	60 H.P.
Swint Brothers, Fremont, Ohio	40 H.P.
B. W. Saxe Pottery Company, Cleveland	45 H.P.
Empire Marble Company, Cleveland	90 H. P.
Gottrom Bros., Fremont, Ohio	40 H.P.
Medina Granite & Marble Company, Medina, Ohio	30 H.P.

The engineering service of The Bruce-Macbeth Engine Company is at the disposal of anyone interested in the reduction of their power costs. They will be glad to make a thorough investigation of the requirements in any particular case and offer recommendations covering the outfit and method of installation that will give best results for the service required; also to give a definite estimate of the annual cost of operation.

It will pay any clay plant to look into the matter of power further, as it affords one of the best opportunities for cutting production cost and increasing the efficiency of high-priced equipment.

Westinghouse Electric Exhibit

One of the most striking exhibits made at the Panama-Pacific Exposition is undoubtedly that of the Westinghouse Electric & Manufacturing Company, which includes one of the Pennsylvania Railroad locomotives mounted on a turntable.

The location of the turntable is under the center of the dome of the immense Transportation Building at the junction of the two main aisles, thus bringing it in full view of the crowds passing through this building, which contains a large number of exhibits of great interest to the public at large.

The turntable is 65 ft. long, and weighs 440,000 pounds, including the locomotive. The height of the track is 12 ft. above the floor, and steel ties are used, a new type of construction for this class of work.

By means of a 10 h. p. 3-phase, 220-volt motor the turntable is caused to revolve at a speed of once in three minutes, thus giving the crowds in each end of the building different views of the locomotive. The rotation, which can be reversed in direction, is under the control of the operator located in a booth nearby.

A decidedly unique method of collecting the current for lighting the locomotive is employed. This was designed by the Westinghouse engineers and involves bringing the leads up through center bearing, to collector rings, thus obviating the use of third rail shoes or trolleys.

The locomotive is arranged and lighted so as to permit the people to pass through it and inspect the equipment. It is clamped to the turntable by means of steel bands so as to prevent any possibility of its becoming dislodged in the event of an earthquake.

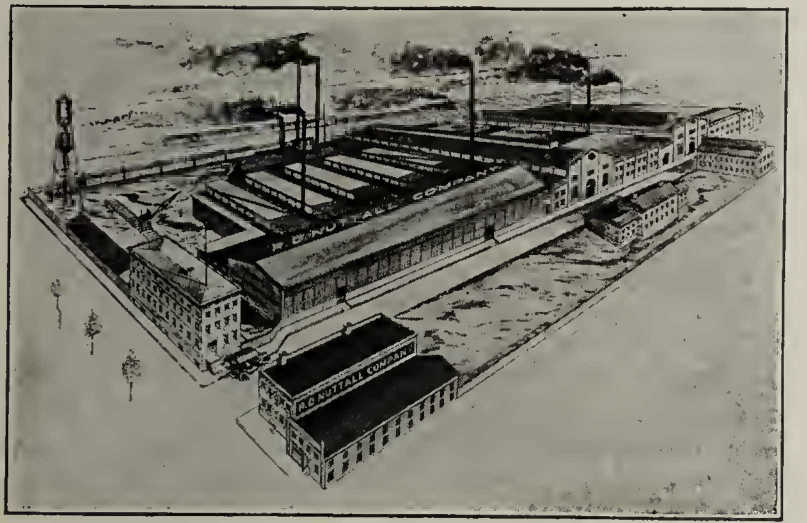
This locomotive is said to be the largest in the world in passenger service. It consists of two units and weighs 156 tons, and is the first side-rod gearless locomotive ever placed in service. It is equipped with two motors having a total capacity of 4,000 h. p. and Westinghouse unit switch control equipment of the HBF type, which has made the phenomenal record of 99,549 miles per train minute delay power control failure. Twelve million passengers annually are transported over the electrified terminal of the Pennsylvania Railroad from Harrison, N. J., to the Pennsylvania Station, New York City, by these locomotives which are capable of attaining a speed of 60 miles per hour with full train.

Nuttall Cut Gears

These views show two departments in the new plant of the R. D. Nuttall Company, the gear manufacturers of Pittsburgh, Pa., and give an interesting illustration of the wide range of sizes and types this company can turn out.

The large gear shown at the right of the cut in the large special gear department is 12 feet in diameter, about half of the capacity of the machine.

In the small gear department the other extreme is reached, and spurs, bevels, spirals, etc., as small as one-half inch in diameter are turned out.



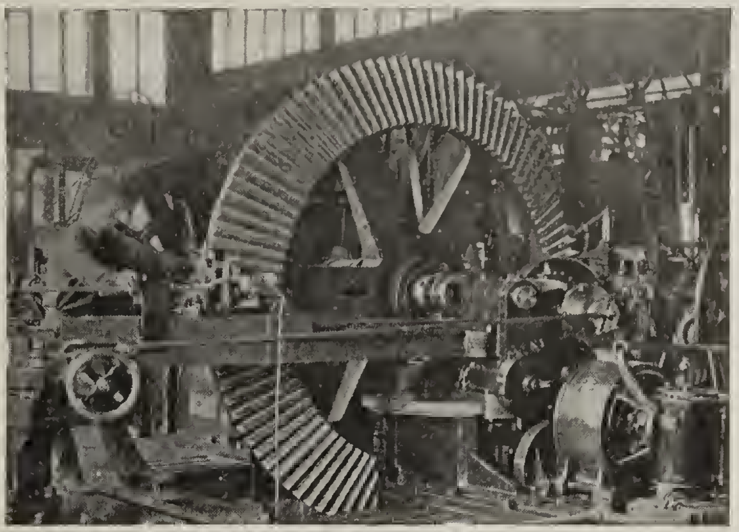
Nuttall Plant, Pittsburgh. Largest Gear Works in the World

The Nuttall Company has for many years specialized on cut gears for brick and clayworking machinery, and as a result of the missionary work done, some manufacturers have entirely abandoned cast-tooth gears, equipping all machines with cut gears only.

Theoretically, the efficiency of cut gears is from 20 to 40 per cent greater than that of cast-tooth gears, and the advantage this offers in the reduced power required to drive machines, gives the manufacturer using cut gearing a considerable advantage in argument over competitors who cling to cast-tooth gears.

Heat treatment, which has been highly perfected during the past few years, has made it possible to develop gearing which will give anywhere from three and one-half to five times the life of ordinary cast-steel untreated gearing, and as much as ten times the life of untreated cast-tooth gearing. Gears up to 50 inch diameter may be treated in oil or special solutions, or may be case hardened, and any of these treatments greatly improves the refinement of structure, the tensile strength and elastic limit, while imparting an exceedingly hard wearing surface, so that the normal life of the material is vastly increased.

This should be of especial interest to manufacturers of grinding and crushing machinery where breakage of gears is such a common evil, and the Nuttall Company is prepared to give definite guarantees as to the increased life to be obtained in any specific service if they are furnished with data as to what life has been obtained from ordinary cast-tooth or untreated cut-tooth gearing.



Cutting a Large Industrial Gear

Scum

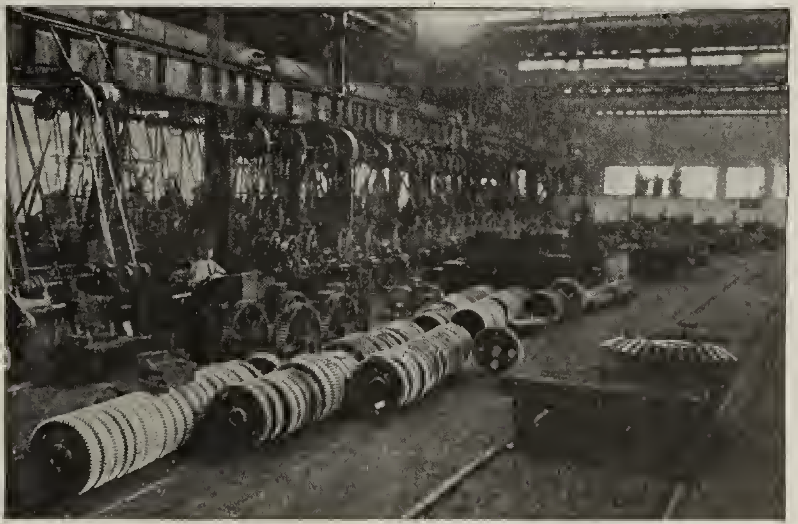
There are many face-brick manufacturers who are bothered with an unsightly scum on their ware, and who are not grappling with this problem in an intelligent manner.

We know that the scum-producing material is in one, or perhaps all, of three places: It is in the clay, the temper water, or is carried into the kiln as a gas from the burning fuel.

Good fortune may smile on your efforts towards elimination after months of worry, loss and experimentation; but why the worry—why the loss, why the delay? It is possible to locate immediately the cause of the trouble, and direct its cure, through the aid of an expert chemist. Send samples of the clay, water and fuel, for analysis and find out where the "trouble maker" is located, and it will be simply a matter of intelligent effort to eliminate it or mask it, and get clear brick.

H. M. Deavitt, 209 S. La Salle St., Chicago, has delved in scientific and practical chemistry for years, and is competent to help you on all questions concerning composition of your material.

Announcement has been made by the Marion Steam Shovel Company and the Marion-Osgood Company to the effect that the litigation which has been carried on for the past several years between these two companies, has been satisfactorily and amicably adjusted. This settlement covers all machinery heretofore shipped by the Marion-Osgood Company, and grants to them shoprights to continue the use of those patents held by the Marion Steam Shovel Company, which are involved in the Marion-Osgood Company's machines as at present constructed.



Section of the Nuttall Gear Cutting Department

SCUM Do You Have It Can You Cure It ?

You could if you knew just where to look for it. Send sample of your clay, your temper water and your coal to me to be analyzed. I will tell you where the trouble is, and how to cure it.

H. M. DEAVITT, 209 So. La Salle Street, Chicago, Ill.

The DEWEY 5-Ton Locomotive

It never balks on heavy loads or grades
Why not let the Dewey do *your* work?

DEWEY BROS., Inc., Goldsboro, N. C.

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

DRYER CARS
ALL STYLES—ALL SIZES
H. W. GERLOCK, Huntingdon, Penna.

We have known it for a long time—

Some of your brother brickmakers have investigated and found it to be true—

But—do YOU know that the

Hinde & Dauch Corrugated Boxes

offer you the most convenient and economical method of packing your sample brick?

They are made in various sizes, and protect the edges and corners of your brick thoroughly.

Don't take our word for it. Write for sample and try it for yourself.

The Hinde & Dauch Paper Company
Sandusky, Ohio

INDISPUTABLE

The records made on the charts of the instruments furnished with Heraeus Le Chatelier Pyrometers are indisputable evidence of the care or the carelessness of your men. Heraeus Pyrometers—cheaper in the end.

CHARLES ENGELHARD
30 Church Street, New York

The Semi-Monthly Trade Review

VIEWING the national clay products outlook from Chicago, where the building situation is in an embryonic stage following a period of enforced retardation, the prospects, by comparison, are bright. From various points in New England and in the southwestern sections of the country there are decidedly bright prospects, not only because of an actual increase in June building plan filings, but in the actual strengthening of the demand for clay products moving into building operations, plans for which have been held up for an indefinite period after filing.

It is notable that the June plan filings were not up to expectations, that they showed a decrease of 7.7 per cent from June of last year, but the reports of companies making a specialty of reporting contracts let or about to be let, show that there is a net gain of 13.9 per cent in actual construction and the call for materials over the same month a year ago. The reports of building contracts let show that construction work taking clay products is only 8 per cent below normal and that the demand for all kinds of materials is 4.7 per cent below normal.

Clay products manufacturers have much encouragement to take from this showing. It is apparent, in the first place, that the price of building materials has gone up. In some parts of the country, notably, New York, the aggregate rise is very sharp, amounting in one particular case to a combined total of approximately thirty-five cents a cubic yard. In the same territory clay products prices have held either firmly or have actually dropped, as is the case of Hudson river common-brick. A month ago this commodity was selling for $6.25. On the fifteenth of this month it was selling for $5.75 and $6. Chicago prices are not what they should be, while structural steel, lumber and other building material prices have been "jacked up" because of pressure on supply from other sources than building. In the Southwest, where there is considerable building activity, prices are said to be steadier and firmer, especially for lumber and some clay products.

Hope springs out of these facts. The increase in price for other rival materials does not indicate that more profits are being taken. On the other hand, it is probable that less profits are being derived from the sale of building commodities because in almost every other line but clay products, prices are being affected by war demands, thus shutting off supply to builders to a more or less great extent, and forcing them to pay more for material.

In the meantime, clay products interests are keeping closer to the purse strings of prospective builders than they have ever been able to keep before. Burned clay is going into a larger proportion of operations, according to building report companies, than in recent years considering the volume of buildings going ahead and the opinion is generally expressed that it is because in comparison with other materials, clay products are cheaper to use.

And the prospects are that these conditions will continue to be so. Reliable advices from lumber cutters throughout the country indicate that they are reducing their operations in anticipation of a heavy export demand that will develop immediately upon the cessation of the war. The great activity in ship building centers everywhere in this country also accounts for a movement in lumber, steel and many building commodities that clay products cannot compete with, thus causing bigger demand and consequently higher market prices to builders competing with clay products in building construction. In some sections, like parts of the New York metropolitan district there is a great popular movement against the further use of wooden shingles on buildings of all kinds. This is likely to spread to other sections and it is a good propaganda for the brick manufacturers and dealers to encourage. This eliminates fire waste and burned clay roofing tile is more economical in the long run.

Art tile and mosaics are characterized by a growing tendency to press their present opportunity in a new direction. The heavy demand for steel in its various forms, interior copper and brass ornamental work and the difficulty of getting foreign marbles for interior work, is opening up a tremendous field for art tile and ceramic mosaics of various kinds. Among the manufacturers of these lines there is an increasing tendency to take advantage of the bigger possibilities now being presented, and in some instances, reorganization and enlargement is taking place. There are several such concerns that are either expanding their plants or increasing the capacity of their existing plants. Practically all of the more important concerns are noting a strengthening in inquiry for this form of decorative burned clay.

Taking the building situation as a whole and applying it to the general clay products industry, there are better and brighter prospects for a continually increasing business. It should be borne in mind that there has been a great deal of building construction work projected during the last eighteen months, that for one reason or another has not gone ahead. In Chicago alone, there is said to be at least 60 per cent of the building projects filed in the last year which have yet to move and, since building money seems likely to become easier as the American foreign trade balance reaches the billion dollar mark and factories are operating day and night to supply war munitions of one sort or another for this country and for belligerent countries abroad, it will only be, according to conservative financial interests, a little more than eight months before the demand for buildings will reach a level that will resemble boom conditions. These same authorities caution building material manufacturers against immediate overproduction, but at the same time they strongly recommend against that ultra conservatism that will force prices so high as to unnecessarily delay contemplated construction work.

Washington Brick Company Doing Good Business

Orders for face-brick which have been secured recently by the Washington Brick, Lime & Sewer Pipe Company, of Spokane, include: Two hundred and thirty thousand for the St. Augustine church at Spokane, three carloads for the Carnegie library at Sedro-Woolley and fifty thousand for the new Mohawk building at Spokane. The company also supplied sixteen carloads of hollow partition tile for the latter building and a large quantity for St. Michael's Scholasticate at Spokane.

Play Safe—
when in doubt—write
Cleveland Alloys Co.
Cleveland, Ohio
For Babbitt—It's "Nugget"
Best Brick Babbitt
Only 15 cents per pound

Broderick & Bascom Rope Co.
Manufacturers of
Aerial Wire Rope Tramways
Yellow Strand Wire Rope
Wire Rope of Every Description
805-809 N. Main St. St. Louis, Mo.

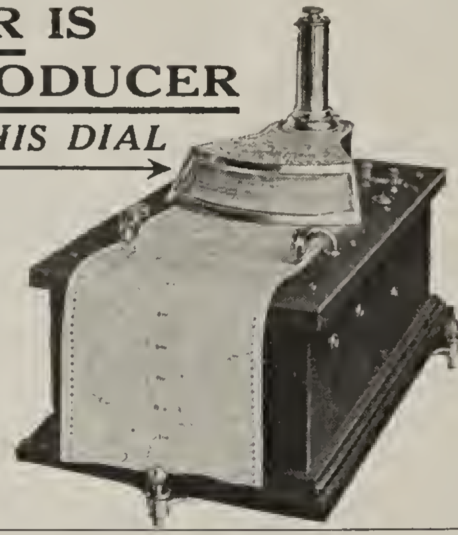
Pyrometer Comparison

Does the Civil Engineer take his measurements with a rubber tape? Will you be satisfied to measure your heat with an instrument even more flexible?

Write for a copy of "Pyrometer Facts."

The Stupakoff Laboratories
Pittsburgh, Pa.

"Buckeye Rails Are the Standard for Quality"
THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories
Offices: Steubenville, Ohio
Mills: Newark, Ohio
BUCKEYE MEANS BEST
BEST MEANS BUCKEYE
All Sections from 12 lb. to 40 lb. per yard
Write or wire us, when in need.
No order too large to handle promptly or too small to secure immediate attention.



THE BURNER IS THE PRODUCER
HE READS ON THIS DIAL
the exact temperature of the kiln, both top and bottom—he knows when to fire and how to fire—and he produces first quality ware.
The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

Track Equipment
WHEN YOU WANT IT
Prompt attention given all orders.
Frogs, Switches, Switch Stands, Portable Track—every kind of track equipment, standard or special.
Catalog C tells all about it — yours for the asking
Cincinnati Frog & Switch Co.
Cincinnati, Ohio

CARS
Pettigrew Dryer Cars are strong, yet easily moved, and will not warp in the dry kilns. Have been used for years by leading brick manufacturers.
We also manufacture special cars, turntables, grate bars and grey iron castings.
Prompt and Satisfactory Service Guaranteed.
Pettigrew Foundry Co.
Harvey - - Illinois
CARS

Think of Shovels, and—You think of Chains
Think of Chains, and—You think of Woodhouse Specials
Place your trust in Woodhouse Specials "They Won't Break"
Catalog on request
WOODHOUSE CHAIN WORKS, Trenton, N. J.

In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

ALABAMA

At Tuscaloosa, Ala., a brick plant with a capacity of 125,000 brick a day and a capital stock of $25,000, has been organized by E. J. Oseling, G. B. Wright and W. E. Bowers.

BRITISH COLUMBIA

Hidden Brothers, Vancouver, B. C., has begun operations at its brick plant which was closed for about a year. The plant, employing about fifteen men, will be operated for at least two months during which time it is planned to manufacture about 300,000 brick.

CALIFORNIA

H. B. Potter, of the Los Angeles (Cal.) Pressed Brick Company, was elected president of the Association of Credit Men of Building Material Dealers at its annual banquet held recently at Alexandria.

The easing up of the money market and the better financial position of California cities and towns in the matter of municipal improvements have led to a number of street improvements including a large amount of new sewer work. The following California municipalities are asking for bids on quantities of sewer work: San Francisco, Alameda, Stockton, Red Bluff, Porterville, Bakersfield, and Newcastle. San Francisco sewer-pipe and brick men also report a good activity in sewer construction in other Pacific Coast states.

E. T. Maple reports the completion of a twenty-two-foot kiln at his new drain tile and pottery plant at Toland's Landing near Rio Vista, Cal. Mr. Maple and his associates have secured a fifteen-acre site at Sherman Island, a large part of which is a clay deposit of a quality suitable for making drain tile, building brick, pottery, white enameled ware and stone ware of various sorts, the making of all of which is now under consideration. The plant is located on tide water so that the output has the benefit of cheap transportation to the region where most of it will be marketed. The cost of the first unit of the plant is placed at $20,000.

California brick manufacturers report a falling off in building operations during the month of June as compared with the same month last year or with the month immediately preceding. Taking the state as a whole, building operations for June are less than two-thirds as great as during June, 1914, and approximately nine-tenths as large as during May of the present year. In San Francisco the showing is better, the total for the month just ended being $891,007 as compared with $1,308,882 for June, 1914, and $947,115 for May, 1915. Approximately half of the total construction for the month was for brick buildings. In Los Angeles the total building operations was the largest on the coast, although, compared with other months, the showing was not as good as in San Francisco. The total building operations for June in that city was $997,240, as compared with $1,682,057 for June last year and $1,168,983 for May, 1915. Some of the smaller cities of the state, notably Sacramento and San Diego, made very poor comparative showings owing to the very heavy operations of a year ago.

CONNECTICUT

Michael Kane, William F. Kane, T. Robert Kane and Joseph M. Kane have incorporated the Michael Kane Brick Company, of Hartford, Conn. The capital stock of the new corporation will be $100,000.

DELAWARE

The state of Delaware has recently issued a charter to the Cuban Silica Brick Company, to manufacture brick, glass, artificial stone and tile. This concern has been incorporated for $350,000 by Warren E. Harlan, George A. Dunlop and Asgood Smith, of Havana, Cuba.

DISTRICT OF COLUMBIA

The West Brothers' Brick Company, of Washington, D. C., has recently shut down for repairs. L. Perry West reports that business is keeping up in good shape.

A circular letter is being sent out by the New Washington (D. C.) Brick Company, which has its plant at Addison, Va., stating that it will be ready to make deliveries about the middle of August. This is the same firm that discontinued business last year.

The Washington office of the Hydraulic Press Brick Company has been awarded the contract for furnishing 250,000 red matt brick for the new colored high school at that point. The company reports business in Washington as being normal, but that there has been a falling off in business from the South.

ILLINOIS

The Galena Tile Roof and Construction Company, Galena, Ill., has been incorporated with a capital stock of $5,000, by Wm. Stacey, James E. Furlong and Jacob F. Meffley.

The Haeger Brick and Tile Company has removed its general offices from Elgin to Dundee, Ill. This company operates factories at Dundee, Gilberts and Coal City, Ill.

INDIANA

For the manufacture of brick and other clay products, the Mazo Manufacturing Company, Indianapolis, Ind., has been incorporated with a capital stock of $4,000. The incorporators are J. Zimmerman, B. Mazo and J. S. Martin.

The First Avenue Brick and Tile Company, Evansville, Ind., has begun work on a large new brick kiln at its plant, which will cost $20,000 and which will have twenty-five chambers, each with a capacity of 20,000 brick. The new kiln is being built to burn a specially hard brick.

KANSAS

A. J. Hazelton, formerly manager of the Kansas Buff Brick Company, has resigned to become vice-president and general manager of the Rowley Copper Mines Company of Arizona. Mr. Hazelton left Kansas City, Mo., recently for the mines, where he will superintendent the shipping of ore.

The Wichita (Kan.) office of the Kansas Buff Brick and Manufacturing Company has been reorganized, and in the future will be known as the Reliance Brick Company. C. A. Noll, formerly manager of this office, will continue in charge.

The T. M. Lee Brick and Tile Works, of Paolo, Kan., was recently purchased by William Schwartz, of Louisburg, and Thomas Schwartz, of Paolo, who are planning to install

"GRIPWELL" Pulley Covering

GRIPWELL
Pulley Covering
Permanently stops all belts from slipping and increases their driving power
GRIPWELL PULLEY COVERING CO. HOLLIS, LONG ISLAND

Does ONE Thing and Does it WELL

Stops Belt Slipping

What kills your belts is continuous running at high speeds, at tight tension over shiny, slippery-faced pulleys. The fiber is pulled, dried and killed and the belt dies of dry rot, is burned by slippage. "Gripwell" Pulley Covering corrects this by eliminating the deep-seated cause. It gives the pulley a leather-like surface and enables it to exert the maximum amount of power without necessitating it being tightened. It will enable you to run belt 1/3 slacker, get a greater arc of contact on the pulleys and thereby transmit more power, and to eliminate power losses and shutdowns due to overheated bearings.

Works equally well with all kinds of belting; leather, canvas or rubber.

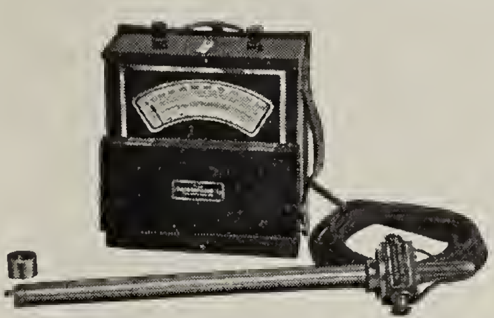
Write to-day for illustrated folder No. 14.

SOLD ON FIVE-YEAR GUARANTEE

"Gripwell" Pulley Covering is guaranteed for five years if applied according to directions. Not affected by acids, fumes, smoke, steam or climatic conditions. Price 75c per lb., f. o. b. New York.

"Gripwell" Pulley Covering Co.
601 Candler Bldg., New York City, N.Y.

PYROMETERS



One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

The Brown Instrument Co.
New York Philadelphia, Pa. Pittsburgh Chicago

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Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

Let us Serve You.

Jackson & Church Company
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PERFORATED METAL SCREENS
As required for BRICK MAKERS USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

New York Office
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Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.

"In the long hours of the quiet night" THINGS DID HAPPEN

It maybe—It can be—your factory, this week, next week, next year

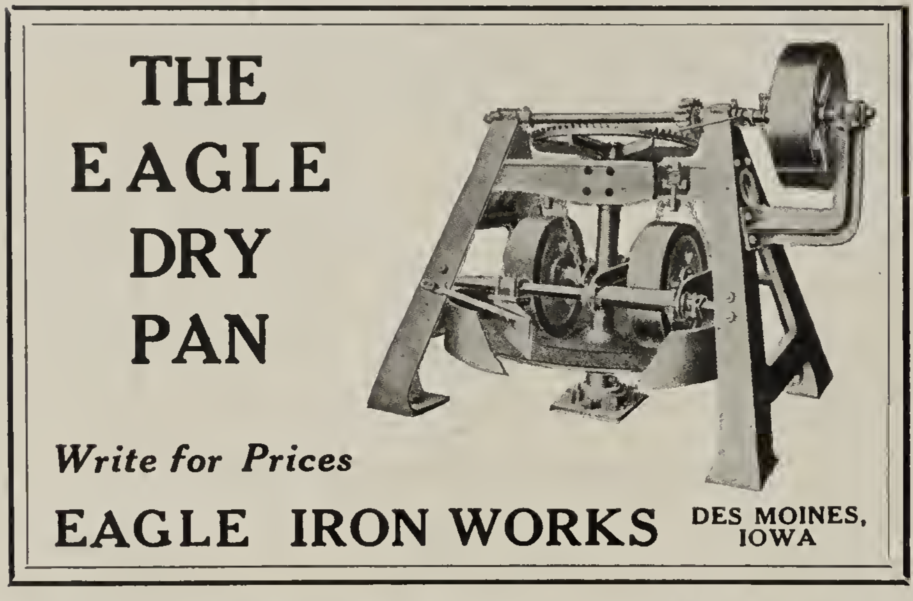
A HARDINGE WATCHMAN'S CLOCK complete system costing $36.00 may save you thousands.

Our booklet tells

It's worth reading

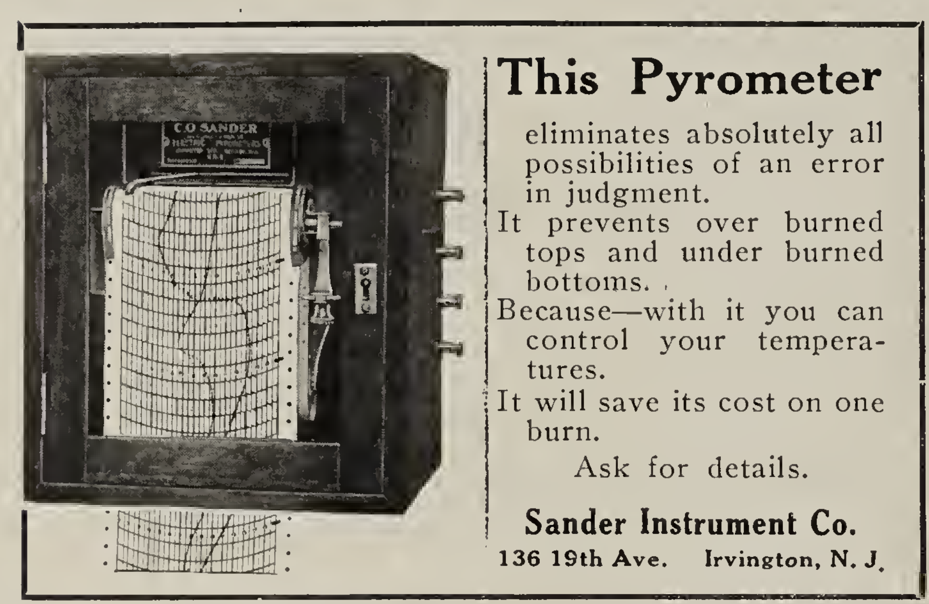
Hardinge Bros., Inc., 1760 Berteau Ave., Chicago

Approved and Labeled by National Board of Fire Underwriters.


THE EAGLE DRY PAN

Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA


This Pyrometer

eliminates absolutely all possibilities of an error in judgment.

It prevents over burned tops and under burned bottoms.

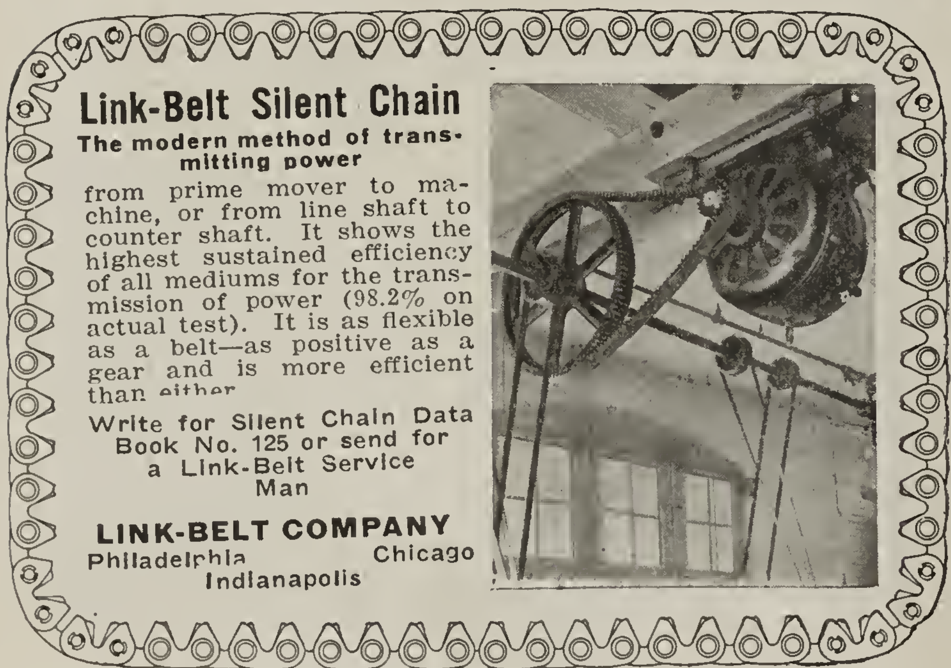
Because—with it you can control your temperatures.

It will save its cost on one burn.

Ask for details.

Sander Instrument Co.

136 19th Ave. Irvington, N. J.


Link-Belt Silent Chain

The modern method of transmitting power

from prime mover to machine, or from line shaft to counter shaft. It shows the highest sustained efficiency of all mediums for the transmission of power (98.2% on actual test). It is as flexible as a belt—as positive as a gear and is more efficient than either

Write for Silent Chain Data Book No. 125 or send for a Link-Belt Service Man

LINK-BELT COMPANY

Philadelphia Chicago Indianapolis

new machinery and operate the plant on a much larger scale than heretofore. Mr. Lee, who is now in his seventy-eighth year, is retiring from active business. John W. Jenkins, who for years has been manager of the plant, has been retained by the new owners in the same capacity.

MARYLAND

W. W. Clarke and Sons, of Baltimore, Md., have been awarded the contract by the Bureau of Supplies and Accounts, Navy Department, for furnishing a large amount of brick to the Washington navy yard.

Cyrus A. Byers, who died in his apartment at the Hotel Emerson, Baltimore, Md., on June 25, was buried from the home of his sister in Philadelphia. At the time of his death Mr. Byers was vice-president and general manager of the Baltimore Fire Brick and Retort Company, and was interested in many brick industries in the East. He was also president of the Etna Machine Company, of Toledo, Ohio, and was well known in Michigan.

MASSACHUSETTS

Fire at the plant of the North Adams Brick Company, at North Adams, Mass., recently did considerable damage to the roof of one of the brick sheds, but did not interfere with the operation of the plant.

The Westfield Brick Company, with a plant at Middle Farms, in the town of Westfield, Mass., has been taken over by a new company of the same name, as the result of efforts put forth by Henry C. Lane, the receiver for the old company. Since the company has been in the hands of the receiver, several large orders have been received and filled. The yard is now furnishing brick for a big addition to the high school building at Dalton, the order calling for 100,000 brick. The clay in the vicinity of the plant is said to be of an unusually high quality, and it is believed the new company has great possibilities ahead.

MICHIGAN

Charles Clippert, of the George H. Clippert & Bro. Brick Company, Detroit, has just completed a magnificent brick home on the West Grand Boulevard that is causing much favorable comment.

Lonyo Brothers, Detroit manufacturers of common-brick, report that while their plant is running to capacity, they are storing a part of the product to be prepared in the event of a rush later in the season. This plant is producing 48,000 brick per day.

Frederic B. Stevens, brick dealer at Larned and Third streets, Detroit, addressed the Port Huron (Mich.) Chamber of Commerce at a banquet held Thursday evening, July 1. Mr. Stevens talked on the advantage of co-operation and organization.

The Grande Brick Company, Grand Rapids, Mich., is now furnishing brick for several new buildings being erected in that city and at Lowell, Mich. This company manufactures a sand-lime brick and reports business as being excellent.

Edward A. Newman Co., 615 Twenty-Fourth street, Detroit, dealers in all kinds of second-hand building materials, most of which is taken from buildings that are wrecked, are now carrying brick, new and old, and report a brisk demand, particularly for the latter.

The Central Michigan Clay Products Company, of Williamston, Mich., as reported last issue, plans to erect at once a large factory. Clay products will be produced

SURFACE CLAY PLANTS

manufacturing brick and tile can cut their clay cost 50 per cent.

A Fernholtz Clay and Shale Gatherer

will gather 80 to 100 yards in one day, from the surface of the field, with One Man and One Team.

The Fernholtz Brick Machinery Company
St. Louis, Mo.
Manufacturers of the famous Fernholtz Dry Press

STRENGTH
UNIFORMITY
DURABILITY
REG. U.S. PAT. OFF.

The Webb Wire Works
New Brunswick, N. J.

Swedish Steel Screen Wire
in coils or looped lengths

Swedish Steel Cutting Wire
in coils or looped lengths

TWISTED
WRAPPED
WIRES
SOLDERED

Even Mixing is the First Step toward a perfect product.

The Rust Special Clay Feeder

Insures the even mix and displaces labor that costs good money but does poor work.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Send for Catalog telling all about it.

Tycos PYROMETERS

Practical
—
Dependable
—
Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

Davenport Locomotive Works,
Davenport, Iowa

***But*—You Can't Do It!**

You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

UNLESS

You have a fleet of
INVINCIBLES

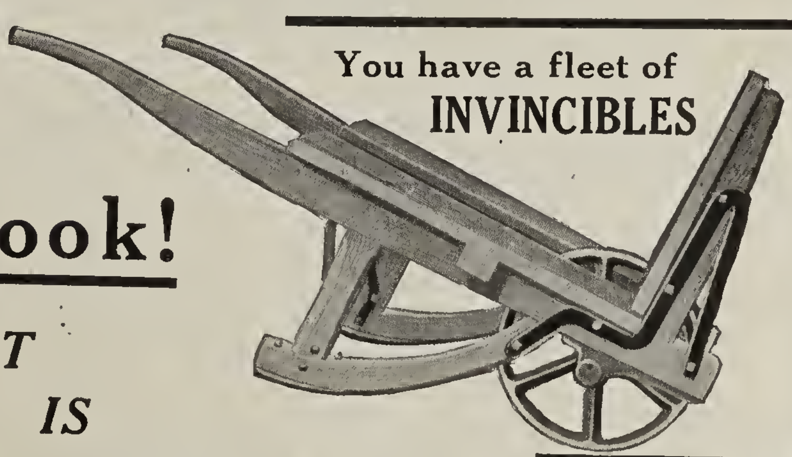
Look!

IT
IS
BALANCED

The axle is under the load—NOT at one end of it. It slides—down the runway—and the hind legs don't rip and tear.

It Rides its Load

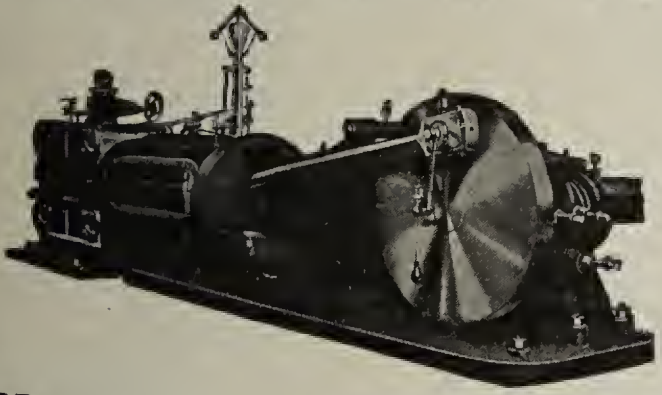
THE TORONTO FOUNDRY AND MACHINE CO.
TORONTO, OHIO



POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS

Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870
BURLINGTON, IOWA



Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives

are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.

A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

Represented by
F. W. Weston, 50 Church Street, New York, N. Y.
Charles Riddell, 625 Railway Exchange, Chicago, Ill.
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George F. Jones, 407 Travelers Building, Richmond, Va.
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Don't Take the Risk

If you make a good brick, why endanger its reputation by permitting the use of an inferior cement? Good brick should be set in good mortar and GOOD mortar is made of *good* cement.

A paving block doesn't get a fair chance if imbedded in poor concrete or set in an uncertain cement.

Lehigh Cement Is Dependable

Its mixture is uniform—high in strength—the same in color and fineness, and helps make permanent buildings and ever-lasting pavements.

LEHIGH CEMENT

and ceramics manufactured from the clay than can be refined to a higher grade.

The Detroit Brick Dealers and Manufacturers' Association is doing excellent publicity work with useful premiums. The latest is the distribution to architects, contractors and builders of metal telephone paper pad attachments, on which appears in gold lettering "Build With Brick. Brick is Everlasting. Fire, Frost, Time and Weather Proof."

Among the many features of the 1915 Michigan State Fair, which will be held at Detroit, will be a brick exhibition in the builders and buyers section which will be located on the second floor of the automobile building. This exhibit will be made by the Detroit Brick Manufacturers and Dealers Association, which has leased 210 square feet. It is the intention of the brick association to build a brick alcove, and in this space will be placed easy chairs to be used as a resting parlor for ladies.

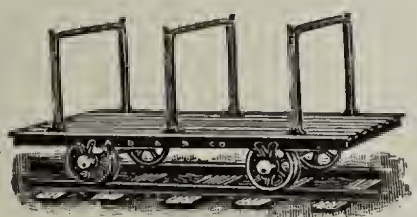
The moving picture industry is helping a great deal to stimulate the use of brick. It is doubtful if another city in the United States is erecting as many new theaters as Detroit, and all of them are being built of brick. A new $100,000 theater is to be erected by the Ferry Field Theater company, at Grand River avenue and the boulevard; Harry Goldstein announces a $250,000 brick and terra cotta theater at Grand River and Bagg streets; John H. Kunsky is completing a $75,000 theater at Grand River avenue and Fourteenth street; the Duplex Theater company is erecting a very novel theater at Woodward avnue and the boulevard; William F. Klatt announces the largest theater in Detroit at Woodward and Horton avenues. These are just a few of the dozen theatrical projects, either being completed, under way or planned.

In answer to a communication received at the office of the Detroit correspondent of "Brick & Clay Record" we give the following figures to show what the Detroit brick manufacturers will produce this year, based on the present output and what they have done for the first five months: F. H. Wolf Company, 10,000,000 brick; Porath Brothers, 10,000,000; McDonald Coal & Brick Company, 3,000,000; Jacob Daniels Brick Company, 4,500,000; Walker & Frank Company, 20,000,000 Schneider, 5,000,000; Lonyo-Harsha, 5,000,000; Sass & Stuve, 5,000,000; Lonyo Brothers, 5,000,000; Mercier, Bryan & Larkins, 40,000,000; George H. Clippert & Bro. Brick Company, 60,000,000; John S. Haggerty Brick Company, 40,000,000; William Clippert Brick Mfg. Company, 20,000,000. There are a number of other Detroit manufacturers whose names have not been mentioned.

The plan of Henry Ford to erect an immense plant in West Detroit for the manufacture of auto-tractors, automobile tires and steel, has caused property in that section of Detroit, Mich., to jump sky high. The announcement is particularly elating to the various brick manufacturers whose plants are out on Michigan avenue and who control many hundreds of acres of clay land, much of which, after experimenting, has been found useless. The brick men are "all smiles" these days as they will be able to sell this land for home sites and business purposes, the property being within a half mile of the proposed new Ford factories. It is almost an impossibility to buy property in the district, but the brick men have lots of it, which from now on will increase in value each day. Architects are working on the building plans, and

REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor



No. 126 Double Deck Dryer Car

ATLAS
High Efficiency
Cars and
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Storage Battery Locomotive for general use.

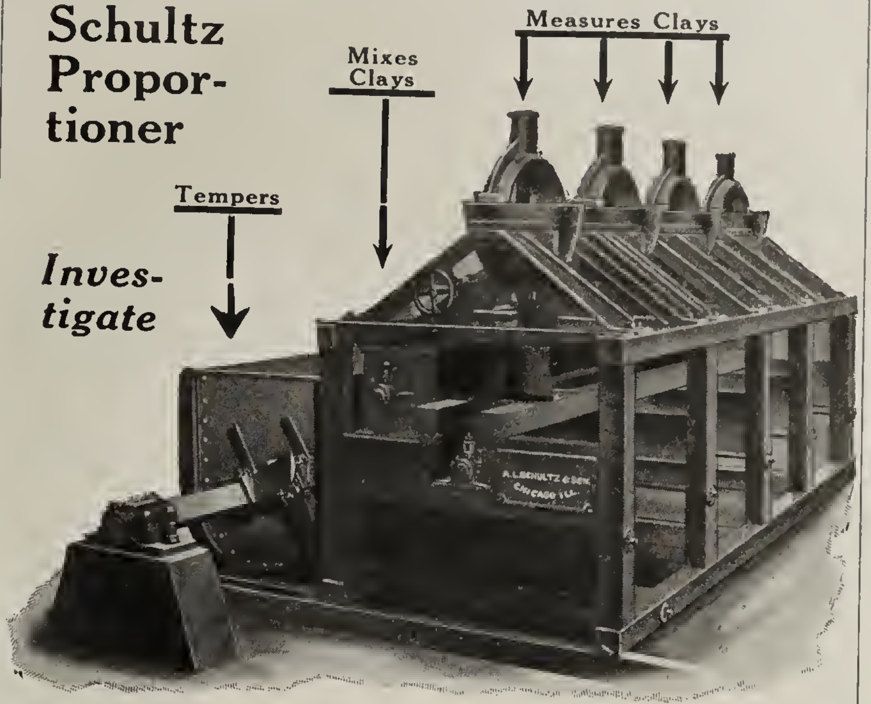
will meet your requirements. Let us send you catalogue and quote prices.

THE ATLAS CAR & MFG. CO.
Dept. I
1287 Marquette Road, Cleveland, Ohio

Automatic—
No attendant required
Three operations—one machine

Schultz Proportioner

Investigate



A. L. SCHULTZ & SON
1675 Elston Avenue
Chicago Illinois

IN THE HEART OF THINGS

$2.50 Per Day
A pleasant room with private bath, facing large open court. (Not **one** room, but one hundred of **them.**)

$3.00 Per Day
An excellent room, with private bath, facing Street. Southern exposure. (Not one room, but eighty-seven of them.)

Also attractive Room without Bath for $1.50 per day. The Restaurant prices are most moderate.

Make Your Dollar Produce More in a New York City Hotel

Location
One minute from 5 of the largest department stores. Five minutes' walk from 19 principal theatres. Within a block of the Fifth Avenue shopping district. Every line of transportation passes the door. Fifth Avenue Bus lines and principal surface lines. The Hudson Tubes across the street. Elevated Railroad Station across the street. Subway Station three minutes away. Grand Central Station within seven minutes. Pennsylvania Railroad Station just one block away.
For convenience one could ask no more.

The Hotel—600 Rooms, 400 Baths
EVERYTHING NEW AND MODERN. A FIVE MILLION DOLLAR HOTEL EQUIPPED TO SATISFY THE MOST EXACTING TASTE.
All Baggage Transferred Free to and from Pennsylvania Station.

THE HOTEL MARTINIQUE
On Broadway, 32nd to 33rd Streets, NEW YORK
Charles Leigh Taylor, President
Walter Chandler, Jr., Manager
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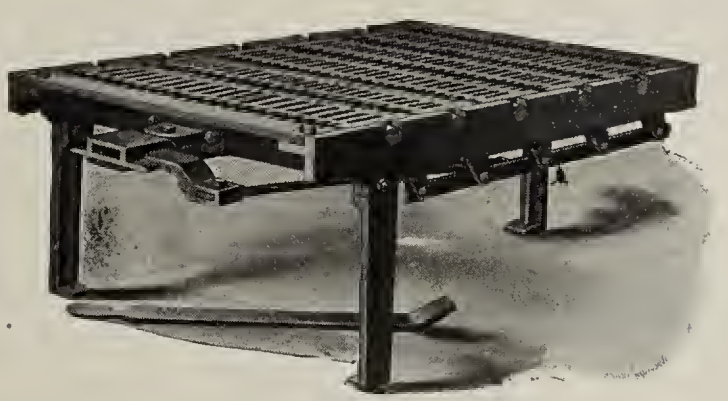
THE CANTON KILN GRATE



FOR THE **PLANT** THAT **COUNTS** THE COST

It enables that plant to buy fewer carloads of coal, and to pay less for the carloads that it does buy. For—the Canton Kiln Grate burns less coal; it does it thoroughly and economically, and it can burn a low grade of coal—to accomplish the same results that you are getting (or want to get) now.

Bulletin B contains complete information on use of grate in kilns.

THE CANTON GRATE CO.
1706 Woodland Ave., CANTON, OHIO

Flower Pots—
A Profitable Bi-Product

No matter what the nature of your clayworking plant, it is no doubt possible for you to add Flower Pot manufacturing with very little additional outlay.

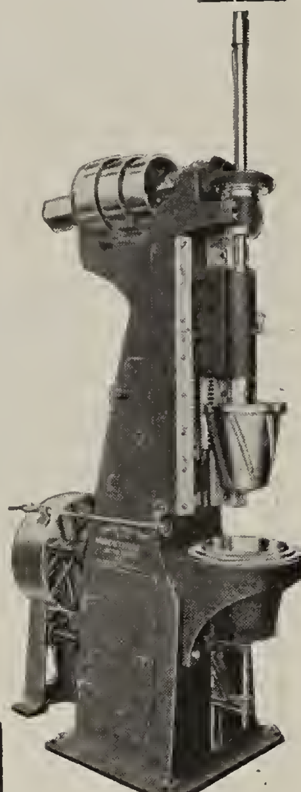
Often you wish you had some way to keep Jim Smith or Jack Jones busy all the time, don't you? Well, here's the solution: put in a

Baird
Flower Pot Machine

Easy to operate, absolutely accurate. Makes any regular size pot desired.

Send us a sample of your clay and let us show you what our machine will do.

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



34000 DRY PRESS BRICK

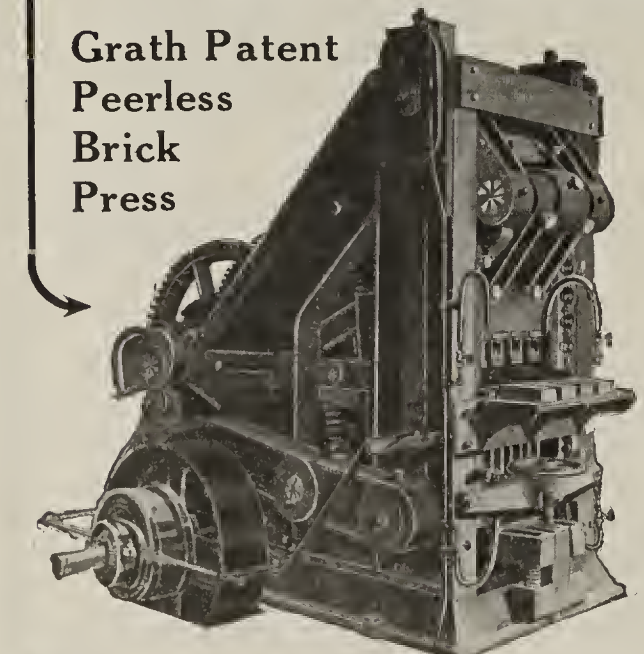
are being made in one day on one four mold machine

Grath Patent Peerless Brick Press

This is not a theory. It is a fact. Do you realize its significance? It means less machinery, less power, less labor, less upkeep and half the investment, to produce first class, dense and mechanically perfect brick — 34,000 per day. It means the difference between LOSS and PROFIT.

Our catalogue illustrates a complete line of brick and roofing tile machinery—we will gladly send you a copy.

ILLINOIS SUPPLY AND CONSTRUCTION CO.
CENTURY BLDG. ST. LOUIS, MO.



it is the intention of Mr. Ford to have the blast furnace plant erected first. This means a big order for fire-brick.

MISSOURI

The W. S. Dickey Clay Manufacturing Company, Kansas City, Mo., will supply the sewer-pipe for the new sewer system at Valley Falls, Kan. There will be seven miles of mains and laterals, the mains being built of fifteen-inch pipe.

The Western Paving Brick Manufacturers' Association held a meeting in its offices at Kansas City, Mo., June 19. Henry Nesch was elected to succeed his father, the late Robert Nesch, as president. Mr. Nesch is now in charge of the Pittsburg Paving Brick Company's plant at Pittsburg, Kan. The remainder of the time was confined to routine business.

Benjamin Curtis, of Kansas City, who has had considerable experience in the manufacture of hollow tile for silos, is now engaged in the work of introducing this product to the farmers of Texas. The tile will be manufactured at El Paso, as well as the iron work for the doorway. Mr. Curtis, however, will not confine his activities to Texas, but is planning to show the farmers of New Mexico the advantages of the hollow tile silo.

NEW JERSEY

Shipments of common-brick to be used in the construction of the new postoffice which is being erected at Plainfield, N. J., have recently been made by the Cliffwood Brick Company, of Matawan, N. J.

NEW YORK

The Cummins Brick and Tile Company, Syracuse, N. Y., has been the successful bidder on a number of jobs throughout the state. One of the good local orders secured calls for 50,000 brick, which are to be used in the construction of a new bath house at Onondago Park. Besides this job the brick to be used in several apartment houses will be supplied by this company. The orders recently received have been keeping the plant running to capacity to supply the demand.

OHIO

The Keystone Brick and Tile Company's plant at Crooksville, Ohio, was purchased recently by J. L. Bennett at a sheriff's sale. The plant was sold for $2,700, which is two-thirds of the appraisement.

A new brick plant at Coonville, Ohio, in the immediate vicinity of a coal mine there, is to be constructed and operated by E. C. Hargrave, of Clay City, Mich., Perry Hazelton, of New Lexington, Ohio, and A. S. McDaniel, of Coonville.

The contract for the handsome new Catholic church at Glouster, Ohio, recently let to Showers & Taylor, of Zanesville, Ohio, calls for the use of select No. 1 flat-finish brick made by the Trimble Paving Brick Co., of Glouster. The convenient location of the company's plant was an inducement to the use of its brick, and this combined with the beauty of the product won the order.

The Provident Savings Bank and Trust Company, Cincinnati, has announced its intention of constructing an addition to its building at Seventh and Vine streets, to cost $150,000. The addition will match the main building in design and finish, a handsome pressed brick being used in the walls. This is the second job of the kind within the year in Cincinnati, the Union Savings Bank and Trust Company having

"Bolt It to the Bin"

The Columbus Feeder

for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio

DURO

Everlasting Clay Block Silos

will increase your sales and profits

Easy to Make Easy to Sell

The Door-Frame Construction is a Marvel

It makes the silo such a solid piece of masonry that it is practically everlasting and indestructible.
We will furnish all the parts, except the blocks, for a very nominal sum, or will sell the right to use our patented device for small royalty. Address at once.

Mowrystown Brick & Tile Co.
Mowrystown, Ohio

THE COAST LINE TO

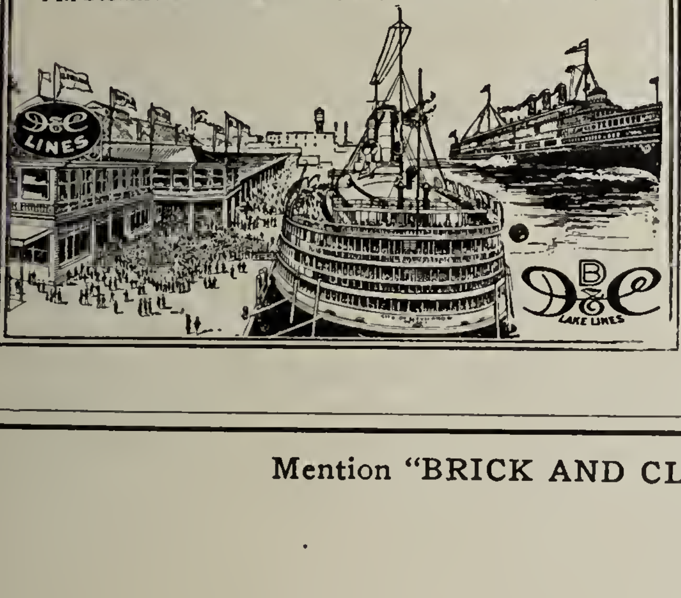
MACKINAC

DETROIT, CLEVELAND, BUFFALO, NIAGARA FALLS. | TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A LAKE TRIP FOR REST AND RECREATION

Have a real vacation on the Great Lakes, the most enjoyable and economical outing in America. The cool lake breezes, the ever-changing scenes along the shore, and the luxurious steamers of the D. & C. Line are positive guarantees that you will enjoy every minute of your trip, and return home refreshed and glad you went.
Daily service between Detroit and Cleveland and Detroit and Buffalo. Four trips weekly from Toledo and Detroit to Mackinac Island and way ports. Two trips weekly, special steamer, Cleveland to Mackinac Island, no stops enroute except Detroit and Alpena. Special day trips between Detroit and Cleveland during July and August. Daily service between Toledo and Put-in-Bay.
RAILROAD TICKETS AVAILABLE FOR TRANSPORTATION on D. & C. Steamers between Detroit and Buffalo or Detroit and Cleveland either direction.
Send two-cent stamp for illustrated pamphlet and Great Lakes map. Address L. G. Lewis, G.P.A., Detroit, Mich.

Detroit & Cleveland Navigation Company
Philip H. McMillan, Pres., A. A. Schantz, V. P. & G. M.
All Steamers arrive and depart, Third Ave. wharf, Det.



To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

Literature on Application

Other High Grade Chemicals For Clay Industries

The Roessler & Hasslacher Chemical Company

100 William Street, New York

Let The Burner Have A Thwing Indicating Pyrometer in his shed connected by a dial switch to one or more Thermocouples in each kiln.

Then he will not need to be making excuses for poor firing and poorer product. With a knowledge of the temperature before him, he can control his firing and produce better ware with less fuel.

Write for Bulletin No. 7

Thwing Instrument Company
437 N. Fifth Street, Philadelphia, Pa.

The Improved Hook Patent Up and Down-Draft Kiln at Forest, Ohio

Mr. Asa Conley, who operates the Forest Brick & Clay Works, writes us under date of June 21, 1915: "This kiln has exceeded my expectations. I am producing good hard-burned ware on bottom courses. The direct heat can be applied at top and bottom at the same time, and it burns the ware uniformly."

Thirty-foot kilns of brick were burned in 82 hours, and 30-ft. kilns of tile, in 55 hours, including the watersmoking period. This kiln burns the ware uniformly, reduces the fuel consumption, lessens the time required to turn a kiln, and increases the output of salable ware.

The Improved Hook Patent kiln is the result of 27 years experience in the clay-product industry and is the most modern kiln on the market today. Can be installed in any kiln at a moderate expense. Write us for estimate of cost to change your kilns or build.

Ohio Kiln Company, Vigo, Ohio

recently completed an addition to its seventeen-story building at Fourth and Walnut streets.

In order to get definite information regarding the manufacture of paving brick, Mayor J. E. Durant, of Greenfield, Ohio, with a party of councilmen, recently paid a visit to several large plants in the vicinity of Portsmouth, Carlyle and New Boston, Ohio, inspecting the plants and their products. The town of Greenfield is preparing to do a considerable amount of brick paving, and the city authorities desired to get first-hand information on the kind of brick that should be used.

Among the numerous jobs, making as a whole a very satisfactory run of business recently landed by the Moores-Coney Company, is the new Women's Building at the University of Cincinnati. For this job the company will furnish Johnsonburg "Artbrique"—a rough textured shale face-brick. A very strong run of good residence work has featured recent business of the Moores-Coney Company. Among the face-brick concerns, one salesman alone secured residence orders in a single week amounting to 100,000 brick.

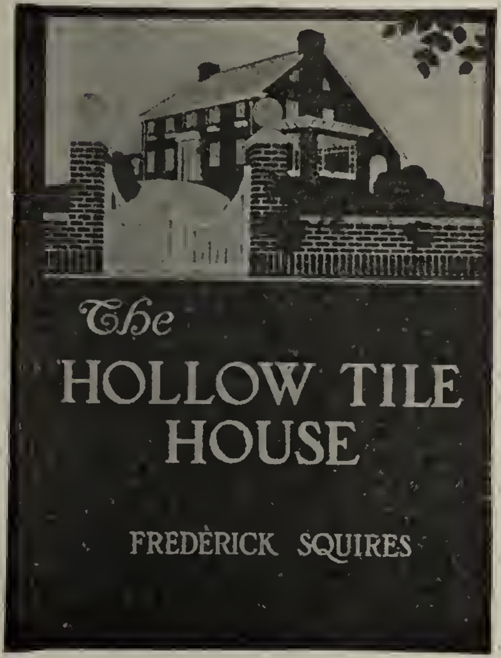
The activity in residence work of the better sort in Cincinnati, which always calls for brick, has received an impetus in the recent announcement of W. E. Harmon and Company, well known New York realty brokers, of the acquisition for sub-division and development purposes of seventy acres of well-located property on Madison Road, near Hyde Park. The company will at once improve and dispose of this property. This will mean the immediate construction of a number of handsome homes in the new subdivision, which, in turn, as indicated, means brick.

In connection with the assertion that there are now in sight in Cincinnati more good-sized building jobs than for some time, additional data is now available in the shape of the recent announcement of Architects Joseph G. Steinkamp and Brother to the effect that bids will soon be called for on a group of new buildings for St. Xavier's College. It has been known for some time that the construction of a new gymnasium for that institution was planned, but it has since been decided to include the structure in a group of several buildings which have been planned. Brick will be used in all of these buildings and the details of the proposed work are awaited with keen interest.

The Cincinnati Clay Products Company, which handles a variety of handsome face-brick, has on hand several jobs of considerable size, among them two which were secured very recently, and which are large enough to give the company ample cause for self-congratulation. For the new chemistry building at the University of Cincinnati the company will furnish 160,000 brick of a new brick which it calls the Southern, in mingled shades, made at a plant with which a connection was recently formed. The other big job recently taken on is the new Warsaw public school, for which 180,000 Darlingtons will be supplied.

The use of clay drain-tile under paving of all sorts, for the purpose of taking care of seepage water, is becoming general, a recent instance at Canton, Ohio, illustrating the necessity of this form of drainage. Several very bad places developed in a concrete street there, largely, it is understood, by reason of improper drainage, and Service Director Kent stated recently that proper underdraining is now understood to be one of the most important features of good paving, no matter what the surface material used may be. In other words, a good clay drain-tile

If you make, sell or use Burned Clay Fireproofing



You Need This Book

THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

ORDER A COPY NOW.

PRICE $2.50

Book Department

Brick and Clay Record

CHICAGO

Marion
REVOLVING SHOVELS

SOME of the most successful business people are men who work only part of each day. They never seem to worry, yet they get a pile of work done. They are *efficient.* THEY MAKE USE OF EVERY MINUTE.

And that's why so many brick-makers are using Marion Shovels to get out their clay. *MARIONS* are efficient, too—and they make a splendid investment for nearly any operator, even when they are kept working only part time.

If it costs you more to run a crew of hand-diggers all day than it would to run a Marion Shovel only a small part of the day, volume of clay handled being the same in each case, it surely would be good economy to change over to "the Marion Way," as many another brick manufacturer has done with great profit to himself.

Your Cheapest Method of Taking Out Clay, Figuring Cost Per Thousand Brick, is With a Marion Shovel

—even though you run it only part of each day and think you have nothing else for it to do the rest of the time. But you will probably find there are plenty of "chores" you can give it to keep busy at, when it isn't digging clay.

We have the facts all ready for you, in our interesting booklet "Digging and Mixing Clay—One Operation."

Glad to send you a copy on request for Catalogue 921.

The Marion Steam Shovel Company,
Established 1884
STATION A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
Manufacturers of Excavating Machinery of Every Description.

15

Low
Burning Costs

Don't
Cut
Your
Prices

Reduce
Your
Costs

The system that we employ in the construction, and subsequent operation of the Hook Kilns, is such that the maximum amount of heat is absorbed by the ware.

"Low cost of burning" and "Hook System" are synonymous terms.

HOOK SYSTEM

Interesting evidence is yours for the asking.

The Hook Patent Kiln Co.
Main Office: Vigo, Ohio
Canadian Office:
250 Dufferin Street, Toronto, Ontario

is virtually indispensable to good paving, whether granite, asphalt, wood, concrete or brick be used for the surface.

The Farr Brick Company of Cleveland, Ohio, has purchased the Towle Brick Company's plant in that city, the consideration being $125,000. The Towle Company's plant includes about twenty-one acres of clay land, and has a daily capacity of 150,000 brick. According to its sales manager, the Farr Company has been obliged to extend its manufacturing facilities because of the large number of orders which have come in recently, the company's orders for June amounting to about 500,000 brick per day. These orders came from Cleveland and surrounding suburbs. The Farr Brick Company has heretofore been without switching track facilities at its old plant, but this deficiency will be supplied by the connections at the Towle plant. The gas well on the grounds of the last-named plant is to be utilized and other wells are to be drilled, providing cheap fuel for the plant, which will be renamed the "H" plant.

Several motives are combined, apparently, in the strong opposition which has arisen in Canton, Ohio, to the use of any material but brick in the repaving of Tuscarawas street, one of the principal thoroughfares of the city. Asphalt was adopted by the council, without consulting the property owners, but vigorous representations on behalf of brick are now being made. The old paving is of brick, of the small size formerly used, and it is suggested that these old brick can be used elsewhere, and the original foundations, with some re-leveling, will be sufficient for new brick paving of the block type. The general superiority and wearing qualities of brick are urged, while the fact that in the immediate vicinity of Canton some of the leading brick plants of Ohio are located is also pointed out as a reason why the city should use the burned clay product instead of something that has a questionable value.

ONTARIO

The Whitney Brick and Clay Products Company, Ltd., Whitney, Ont., has been incorporated with a capital stock of $250,000, the incorporators being J. F. McGregor, T. S. H. Giles and W. C. H. Swineberne, all of Whitney.

PENNSYLVANIA

The Sharon Clay Products Company, Sharon, Pa., has secured a contract to furnish 20,000 paving brick for the city of Niles, shipment of which has already been started.

The McAvoy Vitrified Brick Company, Broad and Arch streets, Philadelphia, recently received a contract from the city for 500,000 paving blocks.

The Lueten Brick Company, Philadelphia, Pa., has purchased a piece of property at the northeast corner of 25th street and Passyunk avenue, the consideration being $2,500. This land adjoins the company's present site and will doubtless be used in the extension of the plant.

William F. Stimmel, proprietor of one of the finest equipped brick yards in the state, at Kutztown, Pa., has leased the property to the firm of Keiser and Miller. This establishment has a capacity for turning out 16,500 brick daily, and supplies much of the brick used in the vicinity of Reading and Allentown.

P. A. Marvel, manufacturer of fire-brick, Philadelphia, Pa., was recently elected to membership in the Fortieth and Market Streets Business Men's Association. This is one of the most energetic and enterprising associations in

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press

Auger Brick Machines

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Piano Wire Screens

Dry and Wet Pans

Soft Clay Brick Machines

Pug Mills

Wet and Dry Clay Disintegrators

Smooth and Conical Roll Crushers

Wood Moulds

Trucks and Barrows

Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

The Underwood Producer Gas Burning System
(Patented)

Is demonstrating daily its superiority over every other known method of burning clay products.

It does not except any kind of ware—burns all kinds from the finest to the coarsest with equal facility—does it perfectly.

It not only burns them better than can be done by any other known method but does it at a great saving—in time—in labor—in fuel consumption.

It elevates the plant from the class peculiar to this industry to the class of modern factories.

It gives the operators in charge of the burning a chance to work with their brain instead of brawn.

Doesn't this appeal to you as being just what you need and want?

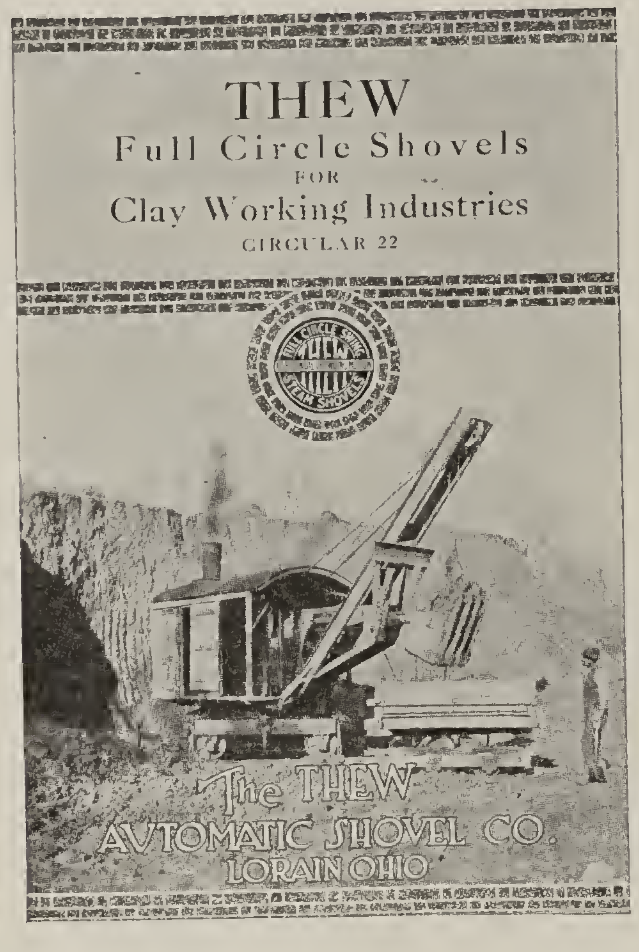
You don't need to accept our statements for the above. Go to one of the many plants where it is operating daily and **see it for yourself.**

The Manufacturers Equipment Co.
Everything for the Clay Worker
Dayton - Ohio, U. S. A.

Western Agents: Geo. H. Smith
203 Sheidley Bldg., Kansas City, Mo.

THE THEW SHOVELS

A New Thew Book Specially Prepared for Clay Workers



THEW
Full Circle Shovels
FOR
Clay Working Industries
CIRCULAR 22

The Thew Automatic Shovel Co.
Lorain Ohio

THIS booklet contains information regarding Thew Shovels, of particular interest to those in clay working industries. Fifty-five actual records of the cost for digging material with a Thew Shovel are shown, and the operation of Thew Shovels as particularly applied to this work is interestingly explained.

This is a book, in fact, that will be of interest to everyone connected with the Clay Working Industry, whether considering the purchase of a steam shovel or not.

Sign and Mail or Use for Memo

City.......................... Date......................

The Thew Automatic Shovel Co.,
Lorain, Ohio.

Gentlemen: Send us your special Clay Worker's booklet, and any other data which you may consider of interest to us.

Bank is............ feet high.

Our material which is { Clay Shale } { can cannot } be handled without blasting with picks and shovels.

We use................ { yards tons } of material daily, operating............ days per year.

Remarks ....

Firm..

By..

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

Philadelphia and has created much favorable comment by the unique practices which it has put into effect.

It was recently reported at the offices of the National Fireproofing Company, 317-320 Land Title Building, Philadelphia, that a large volume of business has been received during the past several weeks and that a much larger demand is expected during the summer months. While no particularly large orders have been booked, there has been a large amount of small orders received for the various products of this company.

According to Philadelphia brick manufacturers, business has been more than fair during the past several weeks, and there is every indication of an increase in the near future. Paving brick has experienced a slight setback, but it is the opinion of prominent members of the trade that business will immediately proceed to take a turn for the better, and it is the consensus of opinion in this vicinity that business for the year of 1915 will exceed that of 1914 by a large margin.

TENNESSEE

John Grenade, of McKenzie, Tenn., is operating his plant making common-brick and reports business conditions as being good in that section.

TEXAS

The Dallas Fire Face Brick and Tile Company, Dallas, Texas, has been incorporated by J. Sidney Johnson, D. C. Williamson and R. L. Denison, the capital stock of the new company being placed at $25,000.

The Abilene (Tex.) Pressed Brick Company has begun the work of rebuilding its plant, which was destroyed by fire in 1914. C. W. Williams, of San Antonio, for many years prominent in brick manufacturing circles of the state, has been engaged as superintendent, and enters upon his duties at once, overseeing the construction of the new buildings and material houses. The plant will be located at the same place it was before the fire, which is four or five miles north of Abilene on the Wichita Valley Railroad. It will be replaced at considerable cost, the new plant being much larger and more modern than the old one.

VERMONT

The Drury Brick and Tile Company, of Essex Junction, Vt., has secured several important contracts. The company is to furnish brick for two new office buildings at Montpelier, the Meade Chapel at Middlebury, the State Armory at St. Albans, an addition to the plant of the Queen Cotton Company, at Burlington, and the new union railroad station in Burlington. Several other smaller orders also are in hand and the company expects to keep busy until well into the fall.

WEST VIRGINIA

The Suburban Brick Company, Moundsville, W. Va., is resuming operations at its plant after a shut-down of several months. One kiln was lighted during the latter part of June and another it is expected will be ready for firing at a very early date.

WYOMING

The Sheridan Press Brick and Tile Company, Sheridan, Wyo., is now operating to a capacity of 30,000 brick per day, this output being used in local building operations, which are at present active.

THE BUYERS' DIRECTORY

Of Clay Products Machinery Manufacturers

Analysts and Chemists, Clay.
Ceramic Supply & Cons. Co.
Deavitt, H. M.

Aerial Tramways.
Broderick & Bascom Rope Co.
Ambursen Co.

Automobile Trucks.
Kissel Motor Car Co.

Babbitt Metal.
Cleveland Alloys Co.
Gerlock, H. W.

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Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.
Wellington Machine Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belts.
Ceramic Supply & Cons. Co.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Sawyer Belting Co.
Scandinavia Belting Co.

Belt Conveyors.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Gandy Belting Co.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Scandinavia Belting Co.
Weller Mfg. Co.

Belt Dressing.
"Gripwell" Pulley Covering Co.

Blasting Machines.
Ceramic Supply & Cons. Co.

Blocks.
Broderick & Bascom Rope Co.

Blowers.
American Blower Co.
Manufacturers Equipment Co.
Trautwein Dryer & Eng. Co.

Boilers.
(See Engines and Boilers.)

Brick Conveyors.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Link-Belt Co.
Manufacturers Equipment Co.

Brick-Handling Machinery.
Mathews Gravity Carrier Co.

Brick Machinery.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Eastern Machy. Co.
Fernholtz Brick Machine Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Brick Machines (Dry Press).
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.
Fernholtz Brick Machine Co.
Illinois Supply & Cons. Co.

Brick Machines (Soft Mud).
Eastern Machy. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).
Chambers Bros. Co.
Wellington Machine Co.

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars, Trucks and Turntables.
Atlas Car & Mfg. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Gerlock, H. W.
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Pettigrew Foundry Co.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.
Wellington Machine Co.

Castings.
Chambers Bros. Co.
Clearfield Machine Shops.
Gerlock, H. W.
Link-Belt Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Cartons (Mailing).
Hinde & Dauch Paper Co.

Cement.
Lehigh Portland Cement Co.

Chains (Steam Shovel).
Woodhouse Chain Works.

Clay Feeders and Mixers.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Schaffer Eng. & Eq. Co.
Toronto Fdry. & Machine Co.

Clay Gatherer.
Fernholtz Brick Machine Co.

Clay Handling Machinery.
Clearfield Machine Shops.
Link-Belt Co.
Weller Mfg. Co.

Clay Plants Complete.
Atlas Car & Mfg. Co.
Chambers Bros. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Clay Technologist.
Deavitt, H. M.

Clutches (Friction).
Chambers Bros. Co.
Link-Belt Co.
Schultz & Son, A. L.
Weller Mfg. Co.

Colors.
Clinton Metallic Paint Co.

Contracting Engineers and Machinists.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Manufacturers Equipment Co.
Smith Co., Claude.

Conveying Machinery.
Chambers Bros. Co.
Link-Belt Co.
Mathews Gravity Carrier Co.
Weller Mfg. Co.
Scandinavia Belting Co.

Cordage.
Broderick & Bascom Rope Co.

Counters.
Ceramic Supply & Cons. Co.

Couplings.
Bruce-Macbeth Engine Co.

Crushers.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Cutters, Automatic Rotary.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Marion M., Fdry. & Sup. Co.

Cutting Wires.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Webb Wire Works.

Dies.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.

Disintegrators.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.

Dryer Cars.
(See Cars.)

Dryers.
American Process Co.
Chambers Bros. Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.
Wellington Machine Co.

Dryers (Sand).
American Process Co.
Ceramic Supply & Cons. Co.
Jackson & Church Co.
Schaffer Eng. & Eq. Co., The.

Dry Pans.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Eagle Iron Works.
Jackson & Church Co.
Manufacturers Equipment Co.

Dynamos and Generators.
Westinghouse Elec. & Mfg. Co.

Efficiency Engineers.
Estes, Inc., L. V.

Electric Shovels.
Link-Belt Co.
Marion Steam Shovel Co.
Thew Automatic Shovel Co.

Electrical Furnaces.
Engelhard, Chas.

Electrical Instruments.
Brown Instrument Co.
Engelhard, Chas.
Taylor Instrument Companies.

Elevator Buckets.
Link-Belt Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.

Elevators and Conveyors.
Ceramic Supply & Cons. Co.
Clearfield Machine Shops.
Gandy Belting Co.
Link Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.

Engineers.
Ceramic Supply & Cons. Co.
Clearfield Machine Shops.
Deavitt, H. M.
Link-Belt Co.
Manufacturers Equipment Co.
Schaffer Eng. & Eq. Co.
Smith Co., Claude.
Trautwein Dryer & Eng. Co.

Engines (Gas).
Bruce-Macbeth Engine Co.

Engines and Boilers.
Bruce-Macbeth Engine Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.

Fans.
American Blower Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Jackson & Church Co.
Murray Iron Wks. Co.

Filter Presses.
Baird Machine & Mfg. Co.

Flexible Shaft.
Bruce-Macbeth Engine Co.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Blowers.
Marion Mach. Fy. & Sup. Co.

Frogs and Switches.
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Cincinnati Frog & Switch Co.
Toronto Fdry. & Machine Co.

Furnaces.
Ill. Supply & Cons. Co.
Trautwein Dryer & Eng. Co.
Smith Co., Claude.

Gasoline Shovels.
Thew Automatic Shovel Co.

Gears.
Baird Machine & Mfg. Co.
Link-Belt Co.
Manufacturers Equipment Co.
Schultz & Son, A. L.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.

Grates and Grate Bars.
Canton Grate Co.
Chicago Brick Machy. Co.
Gerlock, H. W.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Machine, Fdry. & Sup. Co.
Murray Iron Wks. Co.
Smith Co., Claude.
Toronto Fdry. & Machine Co.

Gravity Carrier.
Mathews Gravity Carrier Co.

Hand Power Presses.
Clearfield Machine Shops.
Lakewood Eng. Co.

Hoists.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Block Machinery.
Manufacturers Equipment Co.

Hygrometers or Moisture Indicators.
Taylor Instrument Companies.

Inspection Tests—Consultation.
Deavitt, H. M.

Kilns.
Claude Smith Co.
Hook Patent Kiln Co.
Illinois Supply & Cons. Co.
Manufacturers Equipment Co.
Ohio Kiln Co.
Schaffer Eng. & Eq. Co., The
Smith Co., Claude.

Kiln Doors and Frames.
Gerlock, H. W.
Manufacturers Equipment Co.
Smith Co., Claude.

Kiln Lugs and Bands.
Gerlock, H. W.
Smith Co., Claude.

Lime Mixer.
Gerlock, H. W.

Link Belting.
Link-Belt Co.

THE BUYERS' DIRECTORY—Continued

Locomotive Cranes.
Link-Belt Co.

Locomotive (Electric).
Atlas Car & Mfg. Co.

Locomotives (Gas).
Baldwin Locomotive Works.

Locomotives (Steam).
Dewey Bros.
Davenport Locomo. Works.

Manganese.
Roessler & Hasslacher Chemical Co.

Mechanical Draft.
Trautwein Dryer & Eng. Co.

Metallic Paint.
Clinton Metallic Paint Co.

Molds.
Baird Machine & Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Wellington Machine Co.

Mold Sanders.
Manufacturers Equipment Co.
Wellington Machine Co.

Motors—Electric.
Westinghouse El. & Mfg. Co.

Oil Burners.
Chicago Brick Machy. Co.
Illinois Supply & Cons. Co.
Weller Mfg. Co.
Westinghouse Elec. & Mfg. Co.

Oil Engines.
Chicago Brick Machy. Co.
Weller Mfg. Co.

Oil Test Instruments.
Taylor Instrument Companies.

Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
Clearfield Machine Shops.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Pallets and Trays.
Ohio Galvanizing & Mfg. Co.

Patents.
Peck, Hubert E.

Paving Brick Filler (Cement).
Lehigh Portland Cement Co.

Perforated Sheet Metal.
Ceramic Supply & Cons. Co.
Hendrick Mfg. Co.

Plows.
Fernholtz Brick Machine Co.

Poldometers.
Schaffer Eng. & Eq. Co.

Portable Track.
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co., The.

Potters' Machinery.
Baird Machine & Mfg. Co.
Toronto Fdry. & Machine Co.

Power Plant Equipment (Complete).
Jackson & Church Co.
Link-Belt Co.
Murray Iron Wks. Co.
Taylor Instrument Companies.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Link-Belt Co.

Presses—Sewer Pipe and Tile, Nozzle and Sleeve, Tuyere and Shape Brick.
Baird Machine & Mfg. Co.

Producer Gas Engines.
Bruce-Macbeth Engine Co.

Pug Mills.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Schultz & Son, A. L.
Wellington Machine Co.

Pulleys—Cast Iron, Clutch and Wood.
(See Supplies.)

Pulley Covering.
"Gripwell" Pulley Covering Co.

Pulverizers.
Arbuckle & Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.

Pumps.
Ceramic Supply & Cons. Co.

Pyrometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Englehard, Chas.
Price Electric Co.
Sander Instrument Co.
Stupakoff Laboratories.
Taylor Instrument Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.

Quartz Glass Articles.
Englehard, Chas.

Radiation Pyrometers.
Taylor Instrument Companies.

Rails (Frogs and Switches).
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Cincinnati Frog & Switch Co.
Foster Co., L. B.
Frank, M. K.
Toronto Fdry. & Machine Co.

Railway Equipment (Industrial).
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Cincinnati Frog & Switch Co.
Davenport Loco. Works.
Foster Co., L. B.
Gerlock, H. W.
Manufacturers Equipment Co.

Rattler.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

Recording Gages.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Price Electric Co.
Sander Instrument Co.
Taylor Instrument Companies.

Represses.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.

Resistance Thermometers.
Englehard, Chas.

Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Cons. Co.

Roofing Tile Machinery.
Manufacturers Equipment Co.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.

Sand Dryers.
American Process Co.
Jackson & Church Co.
Schaffer Eng. & Eq. Co.

Sand Lime Brick Machinery.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.
Illinois Supply & Cons. Co.
Jackson & Church Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Eagle Iron Works.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Hendrick Mfg. Co.
Link-Belt Co
Schofield-Burkett Cons. Co.
Weller Mfg. Co.

Sewer Pipe Machinery.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Silent Chain Drives.
Link-Belt Co.

Silo Block.
Mowrystown Brick & Tile Co.

Steamers (Clay).
Schaffer Eng. & Eq. Co., The.

Steam Gages.
Brown Instrument Co.
Taylor Instrument Companies.

Steam Shovels.
Marion-Osgood Co.
Marion Steam Shovel Co.
Thew Auto. Shovel Co.

Steel Ties.
Cincinnati Frog & Switch Co.

Sprocket Wheels.
Link-Belt Co.

Supplies.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Eastern Machinery Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.
Wellington Machine Co.

Switches and Frogs.
Cincinnati Frog & Switch Co.
Buckeye Rolling Mill Co.
Atlas Car & Mfg. Co.
Toronto Fdry. & Machine Co.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Taylor Instrument Companies.
Thwing Instrument Co.

Tie Plates.
Cincinnati Frog & Switch Co.

Tile Machinery.
Chicago Brick Machy. Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.
Wellington Machine Co.

Time Clocks.
Hardinge Bros., Inc.

Trade Names Registered
Peck, Hubert E.

Transfer Cars.
Atlas Car & Mfg. Co.
Chase Fdry. & Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.

Trucks (Auto).
Kissel Motor Car Co.

Turntables.
Jackson & Church Co.
Chase Fdry. & Mfg. Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co., The.
Toronto Fdry. & Machine Co.

Unloading Devices for Pans.
Clearfield Machine Shops.
Toronto Fdry. & Machine Co.

Wagons.
Manufacturers Equipment Co.

Watchman's Clocks.
Hardinge Bros., Inc.

Wet Pans.
Jackson & Church Co.
Toronto Fdry. & Machine Co.

Wheelbarrows.
(See Barrows and Trucks.)

Wheels and Axles.
Toronto Fdry. & Machine Co.

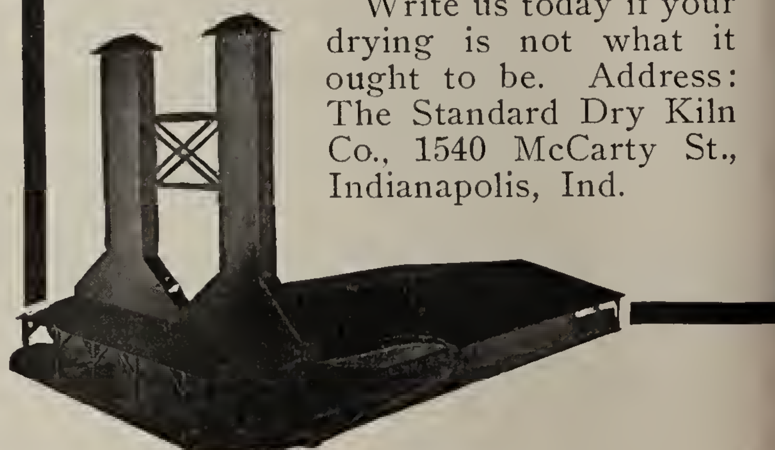
Winding Drums.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Weller Mfg. Co.

Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

The Standard Drier is Doing Wonders

with all kinds of clays all over the brickmaking world. Let us refer you to a bunch of "other fellows" who can tell you "from the heart" how our Natural Draft Drying System will **tone up your product.** They know—because they were up against the same troubles before they installed The Standard Drier.

Write us today if your drying is not what it ought to be. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

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Trade Names Now in Use

on Face Brick and Other Clay Products

Consult this list before you adopt or create a name for your material and so avoid confusion and duplication. Many of the names have been registered in the U. S. Patent Office at Washington D. C., and your use of them constitutes an infringement.

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax, Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter, S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
MBCo—Martinsville (Ind.) Brick Co.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., Wellsville, O.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Stanton—Edward S. Stanton, Cleveland, Ohio.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
Velvet-Nap—W. B. Ferris Brick Co., Columbus, O.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vitrified Velvet—Adel (Ia.) Clay Pro. Co.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.

Fire Brick Facts For Kiln Builders

Do not overlook the quality of Fire Brick used in inner walls, crowns and fire arches of your kilns; this is all important. When fire brick begin to give away the whole kiln is impaired.

No brick construction will stand under strain of gradual contraction account of poor quality fire brick.

Consult us in advance of placing your orders.

Davis Fire Brick Co. Oak Hill, O.

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

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General Office, Connellsville, Pa. *Sales Office,* Bolivar, Pa.

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Mexico Brick & Fire Clay Co.
Mexico, Mo.

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Manufacturers of
High Grade Fire Brick
and Special Fire Clay Shapes

Fire Brick and Floor Tile for Brick and Tile Kilns a Specialty

Established 1856

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High Grade Fire Brick

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BECAUSE OF
Quality, Price and Service

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A Trial Shipment Will Convince You
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ALSEY BRICK & TILE COMPANY
ALSEY, ILLINOIS

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Fire Brick for Kilns.

High grade fire brick, cupola blocks and fire clay.

Write for prices.

Office, 1203 Chamber of Commerce Bldg., Chicago, Ill.

For Lease

Two clay mines sufficiently developed to load two hundred tons per day. Clay twelve feet thick. Two million tons of best block and burley fire clay.

Mines shipping on Pennsylvania Railroad. New York Central Railroad two miles distant. For further particulars, address John Quinn, Houtzdale, Pa.

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A practical work for practical people. A Text Book for Clay Analysis, by Holden M. Ashby, Prof. of Organic Chemistry, Harvard Medical College, and Instructor Chicago Night School of Chemistry. An Aid to Beginners and full instructions for making clay analysis. 64 pages, with illustrations. Postpaid to any address in the world, $1.00.

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445 Plymouth Court, Chicago, Ill.

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DOVER FIRE BRICK CO.
Incorporated 1870
—— MANUFACTURERS OF ——
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Unexcelled for Kiln Purposes
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Double Strength Pipe
Wall Coping
Chimney Tops
Building Blocks

Flue Linings
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Thimbles
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Makers of High Quality Brick for
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Made from shale
VITRIFIED
Many are not as good,
A few may be as good,
None Are Better

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Speedway Block

Dunn Wire-Cut-Lug Brick.
Also High-Grade Building and Face Brick.

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Manufacturers of

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CONNEAUT, OHIO

Manufacturers of Wire Cut Lug Paving Brick
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A High Grade Paving Block for City Streets and Main Highways

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THE HOME OF MEDAL BLOCK AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

"Licensee of Dunn Wire-Cut-Lug Block. The *Best* and most suitable form of *Paving Block for Road Way Improvements* in use with the *Cement Grout Filler.*"

Hocking Valley Brick Co.

Manufacturers of

Hocking Paving Block

Repressed and Wire-Cut Lugs, Dunn Patent.

Plants Logan, O.
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Output 15,000,000 Annually

Increase the Sale of your Output

Our booklet, "HINTS ON FARM DRAINAGE", if distributed among the farmers in your vicinity will convince them of the practicability of using drain tile. Send for sample copy. :: :: ::

BRICK AND CLAY RECORD, Chicago

"Best Paving Block Made"

Daily Capacity 500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

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GALESBURG SHALE

The Purington Paving Brick Co.

GALESBURG, ILL.

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Vitrified Shale and Fire Clay
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Burned in Yates' Patent Kiln

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The Harris Brick Co.

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Office:
St. Paul Bldg.
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Hamburg Vitrified Brick Company

PAVING BLOCKS AND
VITRIFIED BUILDING BRICK

Works
Hamburg, Pa.

Office, 1116 Fidelity Building
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Bell Telephone Locust 2822

Murphysboro Paving Brick Co.

Manufacturers of

THE CELEBRATED EGYPTIAN PAVING BLOCK

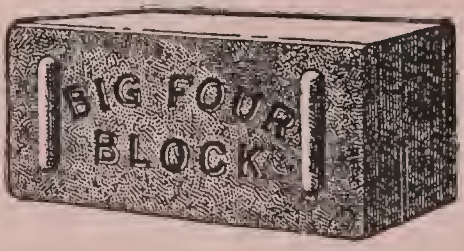
THE BLOCK THAT STANDS THE TEST

Prices and samples furnished upon application

MURPHYSBORO, - ILLINOIS

ALSO DUNN WIRE-CUT-LUG BRICK.

A Uniform Block which makes an Ideal Pavement



THE BIG FOUR CLAY CO.

City National Bank Bldg. Canton, Ohio

L. D. BINYON
President

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Vice-President

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S. S. Kimbell Brick Co.

Facing Brick, Mortar Colors, Raggle Blocks

Main Exhibit and General Offices:
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CHICAGO

Bradford Pressed Brick Company

Bradford, Pennsylvania

Sole makers of the famous "BRADFORD PRESSED BRICK" (Trade Mark Reg. U. S. Pat. Office) the brick of the DISTINCTIVE RED.
"BRADFORD REDS"—the smooth facing brick. Dry Pressed or Impervious, the former in Standard and Roman sizes. Ornamentals in stock.
"Bradford Ruffs"—a rough textured brick for unusual effects.

Samples sent prepaid on request.

Write for "RED" Catalog.

Hy-tex

The Standard of Quality in Brick

Every texture and color of brick may be found in the Hy-tex line. Send for information to the nearest Branch.

BRANCH OFFICES AND EXHIBIT ROOMS

Baltimore; Chicago; Cleveland; Davenport; Dubois, Pa.; Indianapolis; Kansas City; Minneapolis; New York City; Omaha; Philadelphia; Toledo; Washington, D. C.

HYDRAULIC-PRESS BRICK COMPANY
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THE NATIONAL ROOFING TILE CO.
LIMA, OHIO

Manufacturers of the Patent Double

Inter-Locking Roofing Tile

In Two Patterns

Made in Natural Red and Green Glazes

Send Plans for Estimates
Write for Samples and Catalogue

American Clay & Cement Corporation
ROCHESTER, N.Y.

Manufacturers of Clay Products

Distributors Face and Ornamental Brick-Masons' Supplies—All Indestructible Building Materials

ALLIANCE RUG BRICK

Excel all other brick as to texture and beauty of coloring. The chromatic scale of colors runs through the beautiful Rug-texture faces of these brick, most of the brick showing three or four or more of the seven primary colors. One of the most popular sellers in America today.

Mr. Agent, this brick will get you business. Write for samples.

The Alliance Brick Co., Alliance, Ohio

Pittsburg Tile Mfg. Co.

MFRS. OF FLOOR TILE

DOMESTIC QUARRIES

Promenade Tile—
Cove Base, Angles, Caps, all sizes.

EAST LIVERPOOL - OHIO

Brick Houses
And How to Build Them

A book containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc.
The houses shown are all of artistic design drawn by leading architects and show what can be accomplished by the use of brick as a building material.

Price, Postpaid $1.00

Book Department *Brick and Clay Record* Chicago

Bonner & Marshall Brick Company

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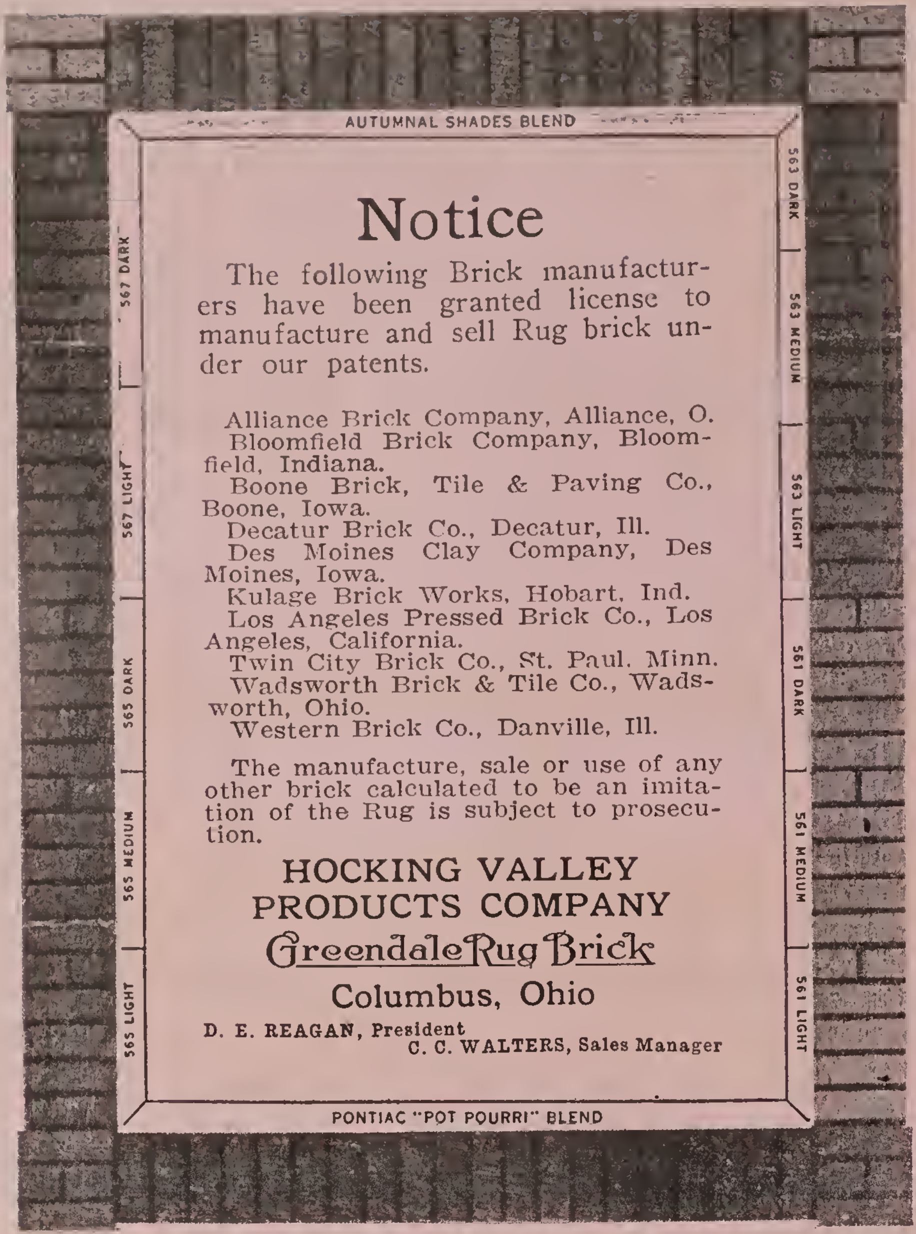
Chicago, Ill.

We handle every kind of good facing brick.

(*Exclusive distributors of the famous Oriental Brick*)


AUTUMNAL SHADES BLEND
567 DARK
567 LIGHT
565 DARK
565 MEDIUM
565 LIGHT
563 DARK
563 MEDIUM
563 LIGHT
561 DARK
561 MEDIUM
561 LIGHT
PONTIAC "POT POURRI" BLEND

Notice

The following Brick manufacturers have been granted license to manufacture and sell Rug brick under our patents.

Alliance Brick Company, Alliance, O.
Bloomfield Brick Company, Bloomfield, Indiana.
Boone Brick, Tile & Paving Co., Boone, Iowa.
Decatur Brick Co., Decatur, Ill.
Des Moines Clay Company, Des Moines, Iowa.
Kulage Brick Works, Hobart, Ind.
Los Angeles Pressed Brick Co., Los Angeles, California.
Twin City Brick Co., St. Paul, Minn.
Wadsworth Brick & Tile Co., Wadsworth, Ohio.
Western Brick Co., Danville, Ill.

The manufacture, sale or use of any other brick calculated to be an imitation of the Rug is subject to prosecution.

HOCKING VALLEY
PRODUCTS COMPANY
GreendaleRugBrick
Columbus, Ohio

D. E. REAGAN, President
C. C. WALTERS, Sales Manager

PORTAGE RUFFS

Sold in mixture. Dark reds blending with flashed brown make a wall of rich beauty.

We make common brick and
hollow building tile also.

Agencies Solicited

Prices and Samples—as requested.

THE KELLER BRICK CO.
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SALT GLAZED BRICK

Beautiful Rich Colors

Buff, Orange and Mahogany

The Stark Brick Co.
CANTON, OHIO

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Exclusive Manufacturers of

"PORTER NATIONAL"
Fire Clay Paving Blocks

Works at Kenilworth, W. Va.
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"AMERICAN"
ENAMELED BRICK

All Standard Colors and Sizes. Bright, Medium or Matt Finish. Agents in All Principal Cities.

American Enameled Brick & Tile Co.

Manufacturers of Enameled Brick Exclusively.

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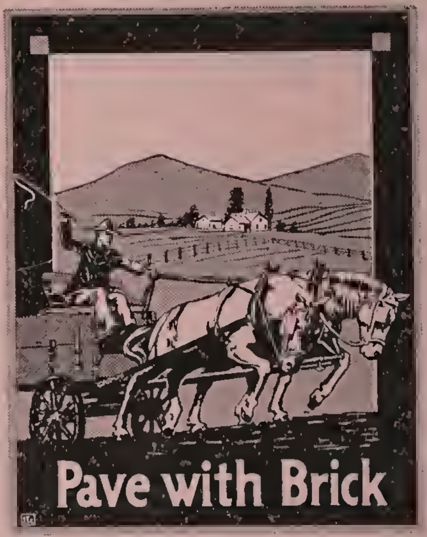
POSTERETTES



200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral—and that moral means better business for the men who make paving-brick.

How about using some of them—now?

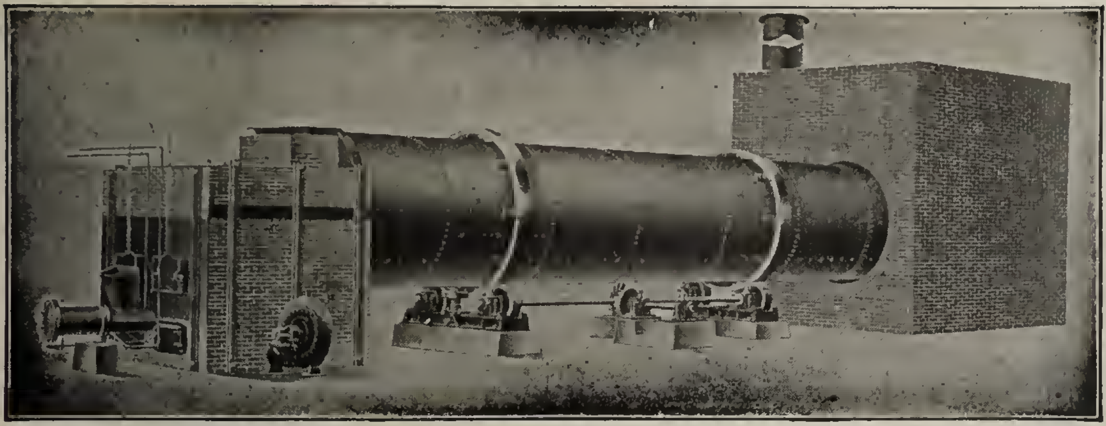
Printed in THREE colors

Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO



ROTARY CLAY DRYER

DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

American Process Co.

68 William Street
NEW YORK

THE CHASE DRYER CARS

With patented flexible and reversible boxing and roller bearings

The *Best Equipment* is the Equipment that gives you the *Best Service*

The Chase Fdry. & Mfg. Company

Columbus, Ohio

BRUCE-MACBETH GAS ENGINES

CLEVELAND

VERTICAL MULTI CYLINDER FOR PRIVATE AND CENTRAL STATION POWER PLANTS

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Composed of expert traffic men and attorneys who practice before the Interstate Commerce Commission, the various State Commissions and all the Courts.

Freight bills audited, claims for overcharge and loss and damage collected, cases prepared and handled before the Interstate Commerce Commission, where shippers and receivers feel that existing rates are unjust, excessive, inequitable, unreasonable or discriminatory, or will assist attorneys or traffic organizations in the preparation of cases. Correspondence solicited.

Modern Brickmaking

By A. B. SEARLE

440 Pages 260 Illustrations $5.00 Post Free

THE NEWEST and BEST OF ALL CLAYWORKING BOOKS prepared by a famous authority in clay products manufacture, qualified to give the trade the latest and best information regarding clayworking processes.

"BRICK AND CLAY RECORD"

445 Plymouth Court, Chicago

OSGOOD

"18" ¾-yd. Traction Revolving Shovel with independent steam steering engine, also combination hand steering operated from either side of shovel.

The Marion-Osgood Company

Marion, Ohio, U. S. A.

Eastern Office: 51 State Street, Albany, N Y.

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STEAM SHOVELS DIPPER DREDGES

Style No. 12

A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

Here is a Kiln Built with Common Sense

The Schaffer Semi-Continuous Kiln is revolutionary only in that it follows Nature's Laws. The average kiln builder gets confused in the maze of dampers, tunnels, forced draft systems, etc., and before he gets through he has upset Natural Laws and seeks to make fuel and heat do impossible things.

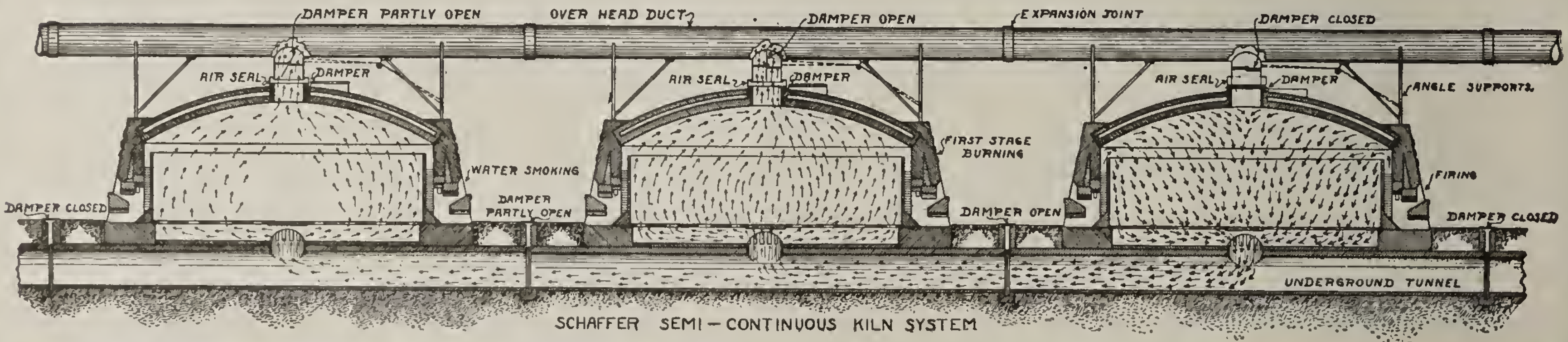
The Schaffer Semi-Continuous Kiln utilizes well-known principles

There is no magic about it—no hocus pocus—now-you-see-it-now-you-don't—stunts. Just plain, common sense, mixed with practical experience and engineering ability.

We have a pamphlet that tells all about this sensible kiln—SEND FOR IT

The narrow confines of this ad will not permit us to tell you just HOW and WHY the Schaffer Semi-Continuous Kiln is built, but we have a pamphlet that tells the story briefly, but completely. We would be pleased to send you a copy.

THE SCHAFFER ENGINEERING & EQUIPMENT CO., Inc, Tiffin, Ohio



Patent Allowed

After 37 Years' Experience

THIRTY-SEVEN years of constant testing out on all kinds of belting service—that's what GANDY has had. And today it stands out greater and stronger, more supreme than ever—a long service belting at a low price.

For 37 years GANDY has been proving to an increasing number of users that it will do the work as well or better than either leather or rubber belting, at about one-third the cost of leather and for very much less than rubber belting.

Gandy Stitched Cotton Duck Belting

You users who are asking for oil-proof, dust-proof, and virtually wear-proof service, can find it right in GANDY, and forget the rising cost of leather belting and rubber belting, just as thousands of others have done.

Try GANDY. It's worth your while. It gives maximum service and satisfaction.

The Gandy Belting Company, 732 West Pratt Street, Baltimore, Md.

New York Office—36 Warren Street

A Photographic Demonstration

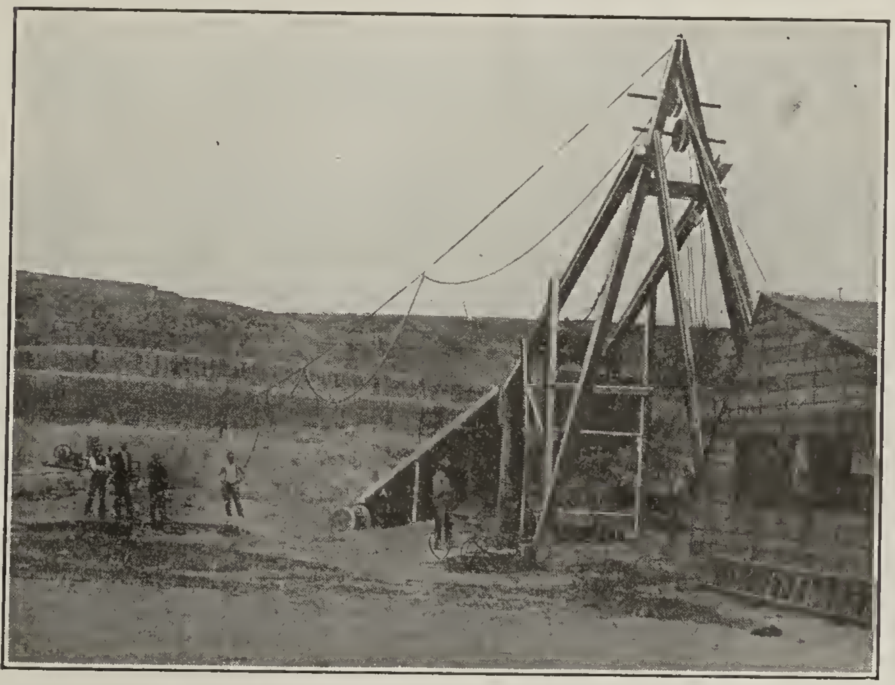
This scene of the clay pit of the Jova Brick Works, Roseton, N. Y., shows a Schofield-Burkett Excavator in operation. It shows how this machine solved the clay digging and delivery problem in Hudson River district. Records show it loads about *300 yards* of tough clay per 10 hour day. A 75 H. P. motor supplies the power. This is actual *proof* that

The Schofield-Burkett Excavator

is the simplest, most practical and most economical earth moving machine ever devised. Without industrial cars and track, it will *dig* and *deliver* any kind of sand, gravel, clay or shale to your conveyors or hopper 100 to 600 cubic yards per day.

We Guarantee Results

We are ready to make a positive guarantee as to results. We take all the risk.



Get Our Catalogue No. 10 Now

Learn how and why the Schofield-Burkett Excavator will solve *your* problems—how and why it is more practical, simple and economical than any other.

Schofield-Burkett Construction Co.

Office and Works: Macon, Georgia

Mr. Paving Brick Manufacturer!

Have you ever used any of these reprints from "Brick & Clay Record?"

"The Truth About the Concrete Roads of Wayne Co."

October 7th, 1913, issue

A 16-page folder, 9x12, in which Paul E. Green, M. E., tells the story of his complete investigation for the taxpayers of Highland Park, Ill., by whom he was sent to get the truth. Profusely illustrated. $2.50 per 100; $12.00 per 500; $20.00 per 1,000.

"Creosoted Block a Failure"

November 4th, 1913, issue

Chicago's experience with wood block graphically told in pictures and type in the form of a 4-page insert at $2.00 per 100; $5.00 per 500; $8.50 per 1,000.

"Chicago Concrete Streets a Failure"

March 7th, 1914, issue

A similar story of Chicago's experience with concrete instead of wood block as above, in the same form and at the same price. A valuable piece of literature in concrete road competition.

"Gov. Glynn (N. Y.) Urges Use of Brick Roads"

April 7th, 1914, issue

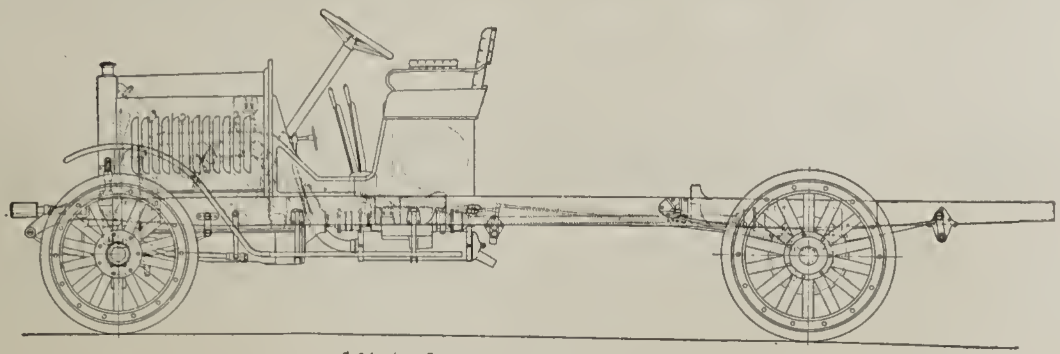
An 8-page folder in which Gov. Glynn, of New York, not only gives his views on the exclusive use of brick for the highways of New York, but backs them up with indisputable facts. $4.00 per 100; $15.00 per 500; $20.00 per 1,000.

Look up these stories in the issues in which they appeared.

Following the title of each story, the issue in which it appeared is given. If you will refer to these issues you will quickly see the value of them in reprint form as quoted above for local use in "turning the tide" in favor of brick.

Brick and Clay Record

445 Plymouth Court
Chicago, Ill.



1½ to 2 ton worm-drive model.

THE NEW LINE NOW INCLUDES 7 MODELS

1000 LBS. TO SIX TONS—$950 TO $4350

After a careful and scientific study into all phases of haulage requirements, we announce an increase in our line to 7 models—ranging from a 1000 lb. delivery body to a 6-ton truck. The new line of Kissel Kar Trucks is designed to supply most economical delivery under every haulage condition which may arise.

KISSELKAR TRUCKS

SEVEN GREAT MODELS

Here is the new line and chassis prices:

1000 lb. delivery	$ 950
¾ to 1 ton truck	1500
1 to 1½ ton truck	1750
1½ to 2 ton truck	2100
2½ to 3 ton truck	2750
3½ to 4 ton truck	3350
6 ton truck	4350

The specifications and details of this wonderful range of trucks are so important that it is impossible in this announcement to more than ask that those interested write at once for complete literature.

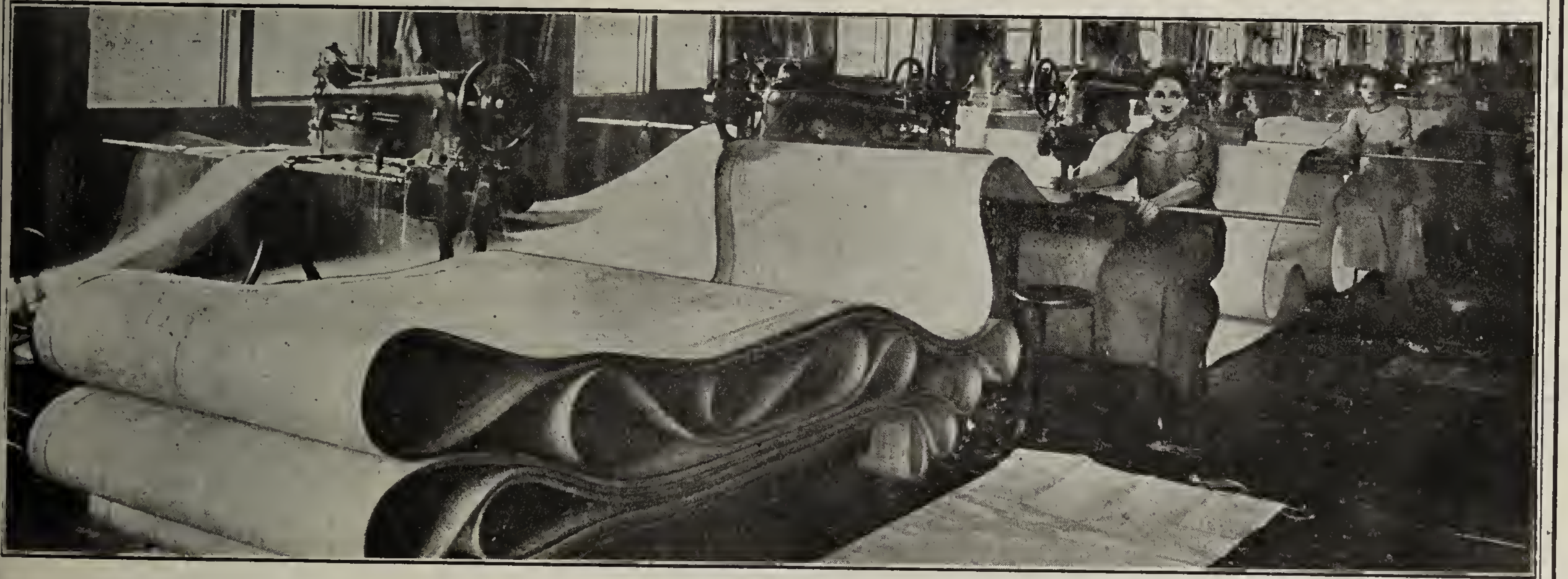
FOR YOUR BUSINESS

Learn in detail the construction of these great trucks—**both worm and chain drive models**—and their adaptability to **your** peculiar problem. They are the most modern trucks on the market.

KISSEL MOTOR CAR COMPANY, 568 Kissel Avenue, Hartford, Wis.

New York, Boston, Chicago, Philadelphia, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Seattle, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria, and three hundred other principal points in the United States and Canada.

Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

When the Demand for Brick is Slack

Is the time to improve your plant operation and secure reduced operating costs.

Others have done it by installing Westinghouse Motors and by using Central Station Power.

Our power engineers have studied the power requirements of clay working plants and have helped many companies to save money.

How they did it makes a very interesting story. Their services are free.

Westinghouse Electric & Manufacturing Co.

Sales Offices in All Large American Cities

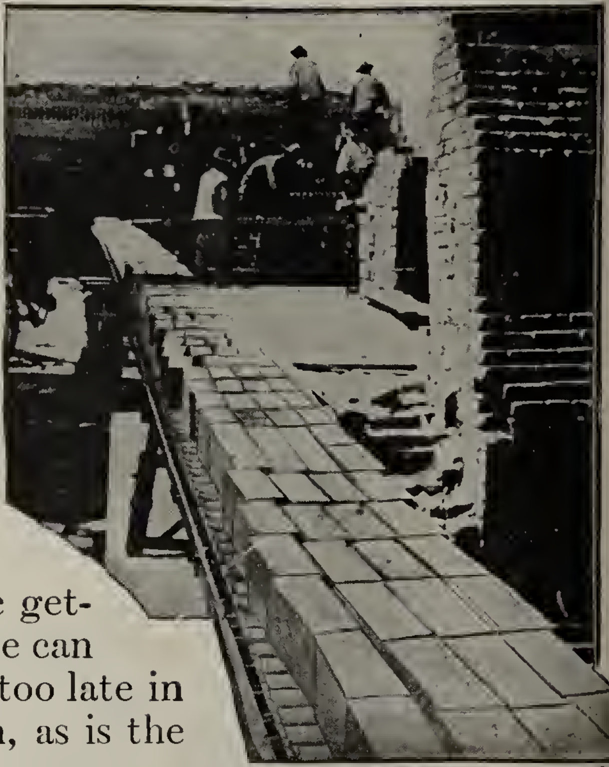
W WESTINGHOUSE ELECTRIC

East Pittsburgh, Pennsylvania

A Steady Stream of Brick From Kilns to Cars.

The Mathews Patented Gravity Brick Conveyer Doubles the capacity of every man in your Car-Loading Crew.

A Mathews Gravity Brick Loading System will prove its full worth when the rush orders commence to come in. Then you will wish you had taken the time early in the spring to get together with us to study out your problems. Right now we know there are many brick men who will not attempt to handle their brick another year with wheelbarrows. Every day we are getting letters from manufacturers who are anxious to know what we can do for them. There are a great many others who will wake up too late in the season for us to help them, as is the case every year.



Our Expert is at your service.

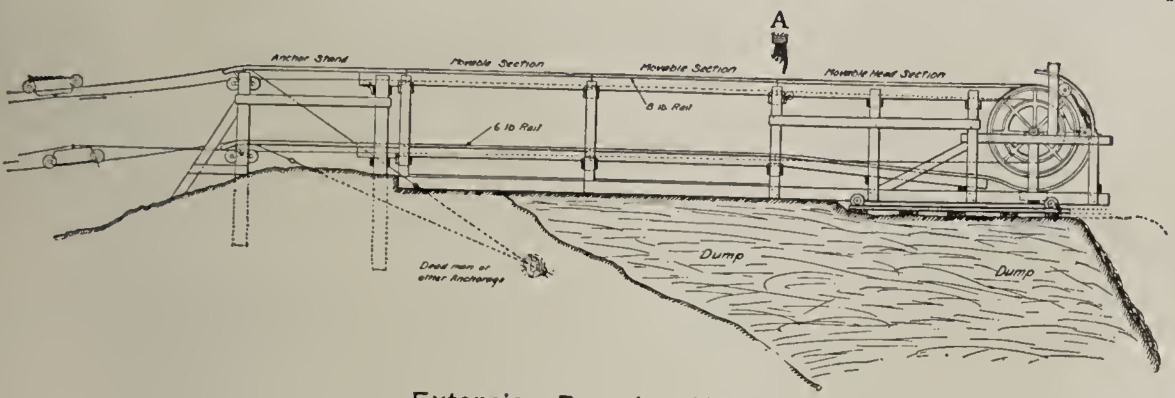
Catalog and Detail Information sent on request. We will not be able to fill orders quickly late in the season.

SPEED
The Mathews Way
MATHEWS GRAVITY CARRIER COMPANY
The Saving Way
ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

THE EXTENSION HEAD



Extension Dumping Head.

The problem of a movable or multiple dumping point is met by us in three different ways, the choice being governed by the conditions of service.

It often happens that a tramway is called upon to dump waste material on to a permanent spoil bank. The illustration is that of a coal mine which dumps its slate and gob over the crest of the mountain into a valley beyond. Ultimately this spoil bank will extend across the entire valley, a distance of 2,000 feet and in the bottom of the valley will show a height of say, 200 ft. Such a spoil bank will contain an immense amount of material and will serve for many years of continuous operation. In such a case it is most convenient to allow the tramway to extend itself along the top of the embankment which it creates.

The cables of the tramway are anchored permanently at the crest of the mountain. They deliver the car in the usual way to an anchor stand which in turn connects with a series of movable sections framed out of light timber and carrying a light T rail for the top and bottom lines. These sections may be made of any desired length, 10 ft. being found practical in this case.

The removable sections connect to the frame of the dumping wheel which is mounted on flanged wheels running on a movable rail resting on temporary ties exactly like a steam shovel.

In dumping, the waste material is thrown away from the dumping head with considerable force and gradually builds up the embankment as indicated by the dotted line. When the embankment is so high as to interfere with free dumping it is roughly leveled off on the top by hand placing so as to receive the ties for the next shift. The dumping head is then disconnected at point "A," rolled forward on loose rails, say 10 ft., the length of a section, and the gap filled with another section. One piece of haul rope is then taken out between any two cars and a correspondingly longer piece inserted. This completes the operation, the whole thing requiring an hour or so to shift.

The little piece of haul rope is not waste because when the dumping head is advanced a distance equal to half the interval between the cars, a new car is coupled in to maintain the total capacity and the various pieces of haul rope, having been preserved, are used over again on further extensions.

In this way the tramway continually creeps ahead using its own dump as a foundation.

We have suspended terminal used under other conditions and still other requirements call for dumping cars. These will be considered separately.

Respectfully submitted,

AMBURSEN COMPANY, Tramway Dept., 61 Broadway, New York

Signs of the Times that Point the Way to a Greater Prosperity for Burned Clay

THESE SIGNS ARE SHEET STEEL with embossed white letters on a dark blue background. They are pierced with six holes for tacking to wood or, with a little wire, you can hang them on the fences along the roads to your town where the farmer, the tradesman, the motorist, and in fact every traveler can read the "Build with Brick" message.

WE SELL THESE SIGNS at the low cost we were able to obtain by contracting for a large number. The sign illustrated costs $6.00 per hundred, with an extra charge of $1.25 for the first hundred, and fifty cents for each additional hundred for imprinting your name. Signs similar in style to this but without the name of the brickmaker can be had for $5.00 per hundred.

Send your orders to

BRICK & CLAY RECORD, 445 Plymouth Court, CHICAGO

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—Master mechanic for a new paving brick plant. All A. C. motor driven machinery. Give full particulars in first letter, whether married or not, age, experience and reference. Post Office Box No. 425, Streator. Ill. 7-2-1

SPECIAL OPENINGS.

WANTED—$25,000 for making changes in our plant to make paving and face brick from the best deposit of shale in a radius of 200 miles. No local competition. Good position to interested party. Address: 7-BH, care of "Brick and Clay Record." 7-2-2

BUSINESS OPPORTUNITY—Architectural terra cotta plant for sale; or will give splendid opening to manager with capital. Agent: Box 269, Burlington, N. J. 7-2-1P

WANTED—POSITIONS.

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacture of common and face brick, pavers and drain tile. Have used all kinds of clays and up and down-draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address: 7-C, care of "Brick and Clay Record." 7-2P

POSITION WANTED—As superintendent. Practical and experienced, all processes, clay and shale; fire, common, paving, building, hollow and other brick. Address: 7-BA, care of "Brick and Clay Record." 7-2-1P

WANTED—Position as superintendent of brick plant. Experienced in fireclays, silica; building and paving brick. Employed, but desire change. Best references. Address: 6-BD, care of "Brick and Clay Record." 6-2-1P

WANTED—Position as manager or superintendent of clay plant manufacturing either vitrified paving brick, dry-pressed or partition and drain tile. Have had 20 years of practical experience in both the manufacturing and sales end of the business. Can design and erect complete plant, including down-draft, continuous and up-draft kilns, also direct and waste heat dryers; best of references given. Address: 7-N, care of "Brick and Clay Record." 7-1P

WANTED—Position as superintendent or yard foreman; 22 years. practical experience in brickmaking and clayworking. Expert burner, good mechanic; can lay out new plant or remodel old. Can produce maximum quality and quantity at minimum cost. Address: 7-F, care of "Brick and Clay Record." 7-1

WANTED—MISCELLANEOUS

WANTED—Superintendent of every clayworking plant to write me and receive free of cost much valuable information on many subjects of vital interest now and in the future. Don't neglect this duty toward yourself. Your letter will solve the mystery of this ad. A. G. Friend, care of "Brick and Clay Record." 7-2-2

FOR SALE—CLAYWORKING PLANTS.

FOR SALE OR LEASE—Brick plant, capacity now 40,000 With addition to dryer can be increased to 100,000 capacity. Fine, inexhaustible shale; good coal can be secured from mine one-quarter of mile from plant. Located on railroad and river. Machinery in first-class condition. Address: 6-BC, care of "Brick and Clay Record." 6-2-2

FOR SALE CHEAP—Tile plant, excellent clay, splendid location. Good reason for selling. Address: Charles Lee, North Star, Mich. 7-2P

FOR SALE—A favorably located brick plant and coal mine in eastern Ohio; excellent shale and fine coal. Capacity 25,000 brick per day. On leading railroad system and near market. Address: 5-BN, care of "Brick and Clay Record." 5-2-4P.

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant: tube mill, dryer, English rotary press. Will sell as a whole or any part of it. Write: Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAY LANDS.

CLAY LANDS—We have clays for face and paving brick, sewer tile and fine products, located on railroads within 100 miles of Chicago, and want factories to utilize these clays. Address: Thomas Crigler, Sec., Attica Commercial Club, Attica, Ind. 7-2-1

FOR SALE—SECOND-HAND MACHINERY.

60-LB. RELAYING RAIL.

About 100 ton, in good condition. Price $18.00 per gross ton.

WICKES BROTHERS,
Jersey City, N. J. 7-2

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

FOR SALE—One 10,000 capacity brick machine, one pugmill, one disintegrator; all in first-class condition. Also one engine and boiler. Columbiana Savings Bank, Columbiana, Ala. 7-2

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—Second-hand multigraph machine in first-class condition. Will make special time inducements. Address: 5-BP, care of "Brick and Clay Record." 5-2-1.

FOR SALE—Stockbridge crank shaper. New and not used. This is a 24-inch shaper with back gear, and patent two-piece crank with quick return motion. Price paid, $625.00, and must be sold. Address: 6-C, care of "Brick and Clay Record." 6-TF

FOR SALE—1 No. 247 American Clay Machinery Company feeder with forge steel shafts and inserted knives and steel gearing with 36x10 inch F. C. pulley. Used but little and practically as good as new. Address: 7-BD, care of "Brick and Clay Record." 7-2-2

FOR SALE CHEAP—Chambers No. 5 brick cutter, side cut, 24 ft. offbearing belt. Used but few months, absolutely good as new. Standard Brick Mfg. Co., No. 8 Furniture Bldg., Evansville, Ind. 7-2-3

FOR SALE—One 5 ft. grog pan complete, new and never used. Made by C. W. Raymond Co., Dayton, Ohio. Will make attractive price. B. E. Hamlin, Detroit, Mich. 7-2-1

FOR SALE CHEAP—125 h. p. boiler, 100 h. p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address: J. F. Vogan. Franklin. Pa. 4-TF

FOR SALE—One 4-mold Penfield dry press in good condition. Address: Hydraulic-Press Brick Co.. 403 Rialto Bldg.. Kansas City, Mo.

FOR SALE—50 end dump cars, first-class, second-hand condition; capacity 3,000 lbs. These cars can be purchased cheap if bought at once. Address: 6-BE, care of "Brick and Clay Record." 6-2-1

FOR SALE—Pine pallet boards and dump carts —cheap. Chas. Berrick's Sons Co., Buffalo, N. Y. 7-2P

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All sections, New and Relaying, in stock for immediate shipment.

Second-hand rails cut to any lengths desired for all purposes.

Also Frogs, Switches, Spikes and Bolts.

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All Sections—Lowest Prices.
A few snaps:
50 tons 12-lb. relay
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200 tons 20-lb. relay

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COVERS THE CONTINENT

A new Kiln treatment that increases efficiency and insures longer life for the masonry

THE J-M Treatment for brick and pottery kiln settings has a twofold function, namely: to preserve the firebrick edges by the use of J-M No. 31 High Temperature Cement, which is used as a mortar between the firebrick courses; and secondly to protect the completed masonry by painting it with No. 32 High Temperature Cement which insulates the kiln walls against the uneven absorption of heat and preserves the firebrick faces.

Both of these cements have fusion points above 3000 degrees F. They are unaffected by changes of temperature.

No. 31 J-M High Temperature Cement

is an ideal firebrick mortar because it seals the uneven surfaces between firebrick and protects the brick edges from the action of the flame. It cannot be dislodged from between the firebrick because it vitrifies at a comparatively low temperature and continues to gain mechanical strength up to 3182 degrees F., its fusing point.

No. 32 J-M High Temperature Cement

No. 32 J-M High Temperature Cement is to be used as a paint for covering the entire interior of the kiln. Mix it with equal parts of water and apply it with an ordinary brush. It fills the pores of the brick and by offering a uniform surface to the flame, prevents cracking from unequal brick face temperature. It has a binding action that prevents the falling of disintegrating particles on the material being fired.

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Manufacturers of High Temperature Cement, Asbestos Roofings, Pipe Coverings, Metallic Hose, Waterproofing, Stack Lining, Packings, etc.

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Gentlemen: Please send me complete information on the J-M brick and pottery kiln treatment.

You, Too, Can Save Money On Your Drying

The "Wellington" Improved Steam Pipe Rack Dryer

combines every possible Economy with the highest degree of Efficiency.

It's a Low Pressure Vacuum System—it's **first cost** is **lower** than any other dryer—it can be installed at **less expense,** and operated at a big saving in power and labor.

We will give you facts and figures to **prove it** or you can ask any of the following representative brick companies:

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American Bldg. Bk. C., Cleveland	30,000 capacity
Collingwood Brick Co., Toledo . .	35,000 capacity
Ohio Brick Co., Toledo	35,000 capacity
Walker & Frank Brick Co., Detroit	35,000 capacity
Farr Brick Co., Cleveland, H plant .	120,000 capacity
Standard Brick Co., Cleveland . . .	60,000 capacity

If They Have Found It An Economy
So Will You—Ask Us More About It

Read this and be Convinced:

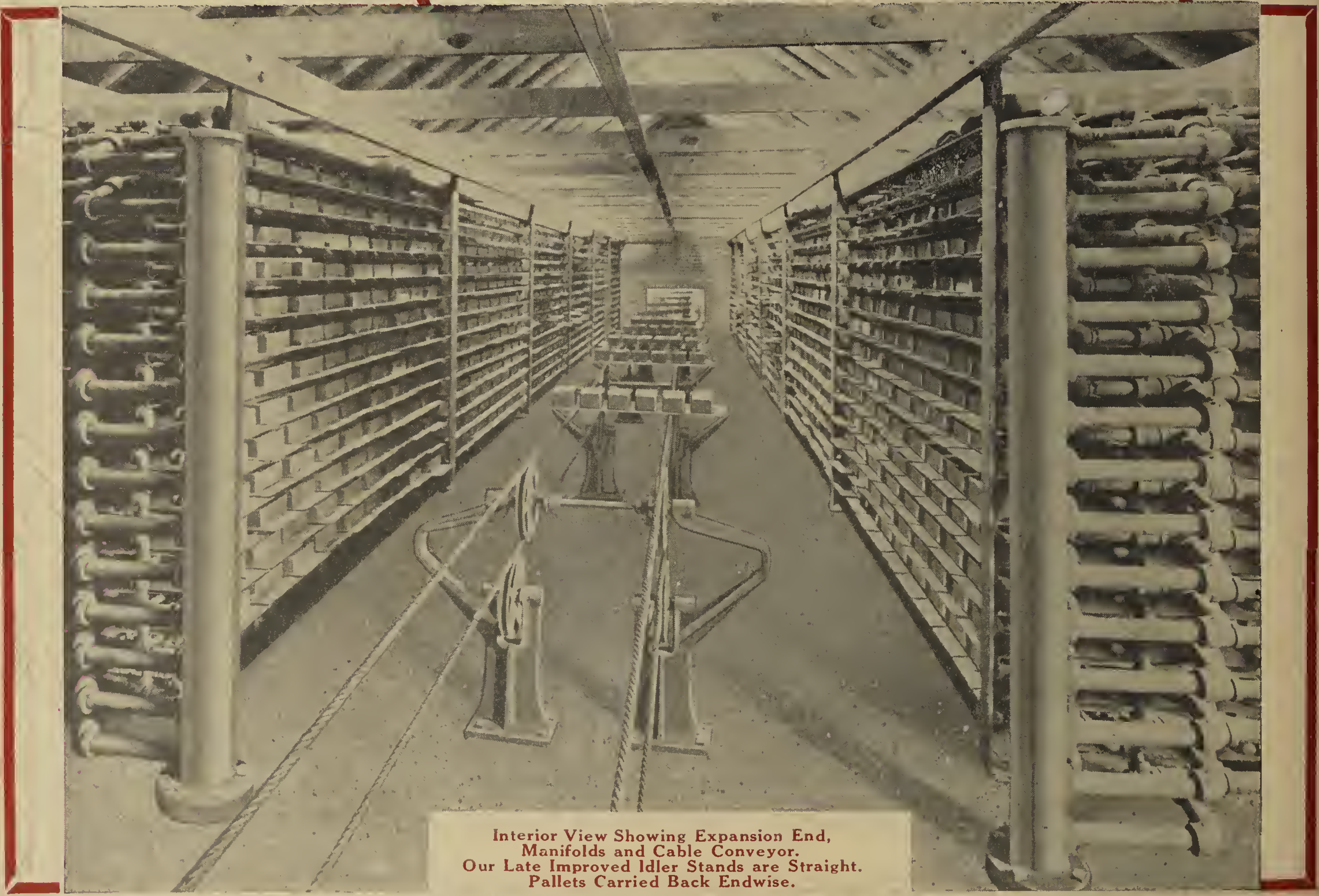
Wellington Machine Co.,
Wellington, Ohio.

Have found your Dryer a **grand success.** We are having **no trouble** and are actually drying brick in this Dryer that **does not cost us a cent.** The Wellington Dryer is one of the **best on the market.**

THE OHIO BRICK CO.,
A. R. Kuhlman, Mgr.
Toledo, Ohio.
June 29, 1915.

The Wellington Machine Co.

Wellington, Ohio



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AUG - 7

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The Standard Textile Belt of the World

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Note the construction, no plies, no laps, no stitches.

Is of uniform thickness, has enormous strength, grips the pulley well, drives more power, backed by an absolute guarantee and 35 years' belting experience.

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Vol. XLVII, No. 3 Chicago August 3, 1915

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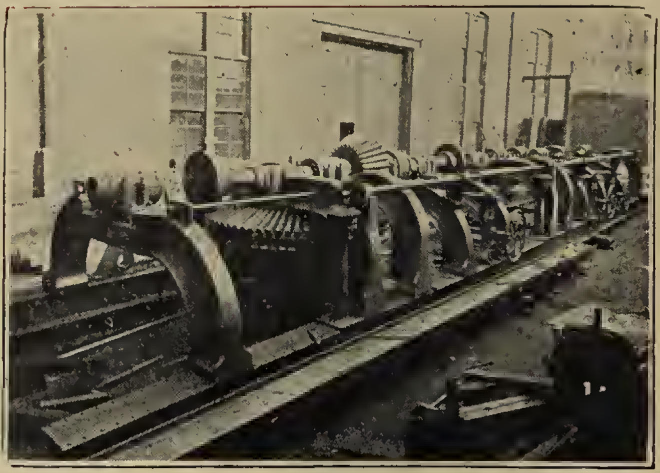
Complete Clay Handling Systems

CONVEYING SYSTEMS.
For Handling Shale, Lump or Ground Clay, Grog, Coal, Etc.

HEAVY STEEL ELEVATORS.
Up to 36 in. Pitch and 84 in. Wide.



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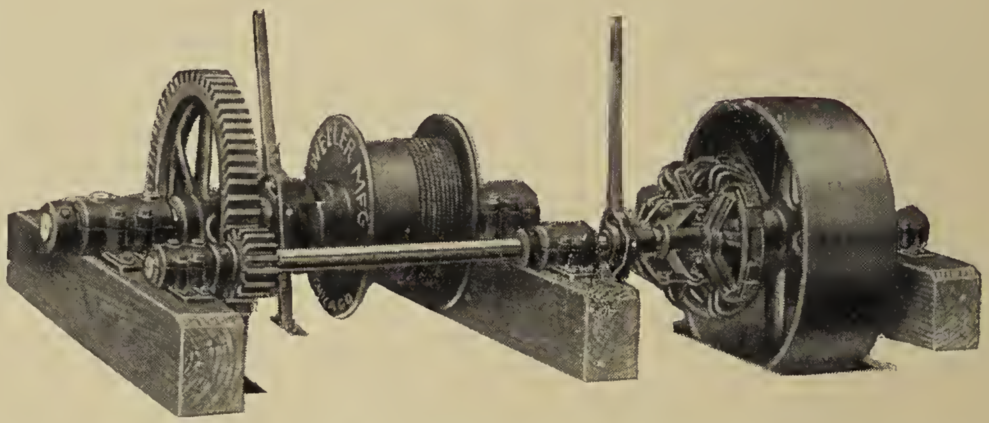
Complete Systems of Power Transmission by Rope, Belt, Gears or Chains.



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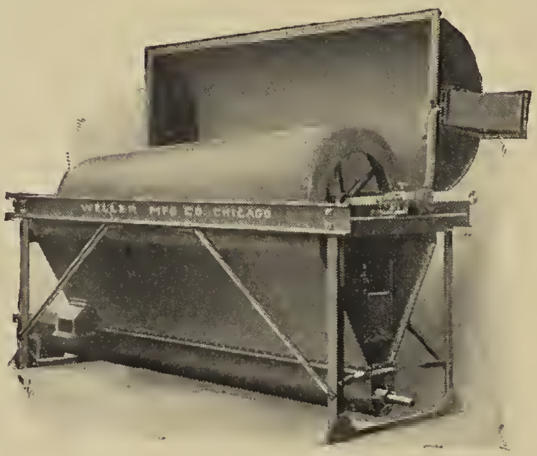
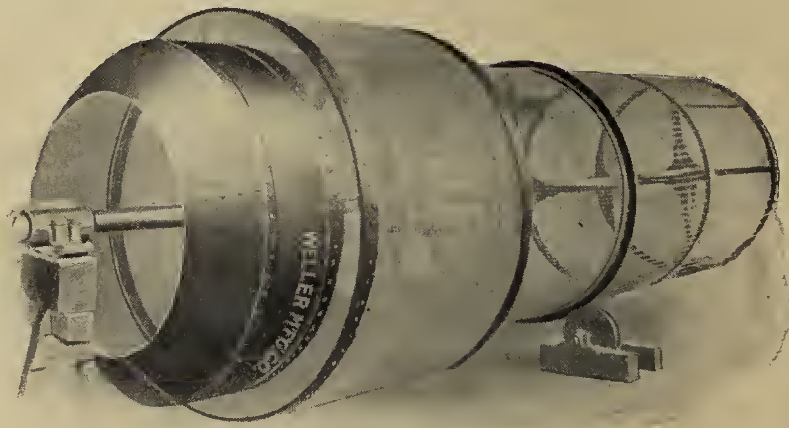
Built in Any Capacity, from 1 Small Pit Car Up to 50 Loaded Standard Gauge Railroad Cars.





REVOLVING, SHAKING OR STATIONARY SCREENS, OPEN OR ENCLOSED.
Built to Suit Any Conditions or Requirements for Shale, Grog, Clay, Etc.

We Know How to Build—

Elevating, Conveying and Transmitting Machinery

WELLER MANUFACTURING CO., Chicago

How Barnes' Helped Foster

"Hello Barnes'. How's the Clayworking business"?

"Well! Well! If it isn't my old friend Foster. What brings you down this way?"

"Barnes, to make a long story short. I heard you were a success as a clayworker, and as we are very close friends, I came out to see you and have you tell me how you do it.

"We are about to build a yard ***down our way, and I am making a trip to various plants to get some ideas".***

"Have you had your material tested?"

"Yes, in a general way."

"Did you secure any data of benefit to you on the plants you visited as far as you went?"

"Only in this way. Every clayworker seems to have his own problem to solve, and what is suitable for one is unsuited to another".

"Foster, you struck the keynote just now.

"Let me give you some advice.

"When we started here, we were in just the same position you are.

"We visited and compared, and returned home with doubts in our minds. Things which we saw were not conclusive and we were unable to separate the wheat from the chaff.

"We learned of a man in Chicago named Trautwein, and had him come down to help us.

"He tested our material for us in an impartial manner.

"He studied our conditions of supply and demand, and first decided whether it would be profitable for us to build a yard at all.

"He then assisted us in purchasing the most desirable equipment, dryers and kilns and, believe me, he went into this thoroughly.

"He designed our plant for us, drawing on his extensive and varied experience, so that today we have a model plant.

"He furnished our dryer equipment, and there is none better on the market.

"Foster, when you get home, you telegraph to J. O. Trautwein, President of the Trautwein Dryer & Engineering Co., 417 So. Dearborn St., Chicago, to come down to your site. Tell him what is on your mind.

"If he doesn't start you off right, nobody can. He is the best posted man I know on clayworking plants and an authority on this subject.

"We owe our success to his careful judgment and experience."

"I certainly want to thank you Barnes. I want to meet that man. Haven't you a telegraph station here?"

Service to Clayworkers

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Opposing Forces

Remember the good old days of "Kite Time" when you forgot all the chores in your eagerness to make a kite that would fly farther, and higher, than any other fellow's in the old town? Sure you do.

How that old kite would sail! And talk about pull! Hully gee! Let the old wind blow—the harder the better—that's what the old kite liked.

That's it! Opposing Forces. You can't fly a kite in a calm—it needs a strong wind; and the kite worth while soars on serenely.

But not all kites are winners. There's the cranky bob-tail that would twist and turn, and when you least expected, it would dash to the ground or become tangled in a tree-top. It lacked Ballast.

How much we humans can be likened to a kite: Those worth while are made stronger by opposition—they go on and up to success. But many lack Ballast—they are cranky and ungovernable—they "fear to do" and they "dash to earth," hoping to land safely and not get hurt.

Be a **Doer** if you would be successful. Get into the Trade Wind Current to "fly your Business Kite," so it will go farther and higher than the other fellow's.

Let the Advertising Columns of your favorite publication give you that helpful advice that may be likened to the "cord" that gives you courage to "let her out"—or the "tail" that gives your business proper Ballast.

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Leviathan Belting

Is 33 Years Old

LEVIATHAN AND ANACONDA
ELEVATING
TRANSMITTING
CONVEYING
BELTING

Anaconda Belting

Is 5 Years Old

A real reputation represents years of producing and selling goods of the highest quality.

The reputation of LEVIATHAN and ANACONDA belting, known by the user and conceded by competitors, is a live, positive thing founded entirely on the fact that

Each Belt is Made on Honor

and each year has witnessed quality invariably maintained and progress healthily made.

We come to you in 1915 with full acceptance of our responsibility and determination to save you money on each belt we ship you.

This is Our Obligation
Hold Us to It

Main Belting Company

Manufacturers and Engineers

Philadelphia
Pittsburgh
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Seattle
Chicago
Birmingham

Main Belting Co., of Canada, Ltd.
Montreal
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Send for Booklet No. 2 on Conveying

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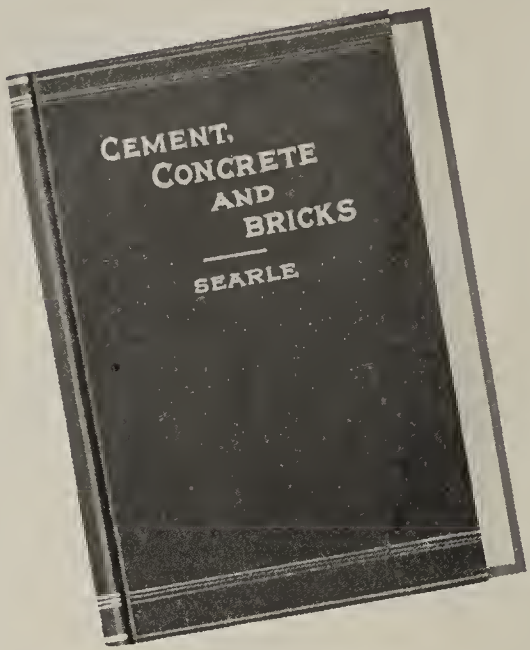

412 Pages, 8¾x5½, 113 Figs - $3.00

IT IS WELL to know as much about a competitive material as possible and for this reason, the information about cement which is given in the book which is illustrated above will be valuable to the clayworker. In addition to that, however, practically half of the volume is given up to information regarding the various kinds of clays that are used in brickmaking, as well as the various processes of making brick.

The author, Alfred B. Searle, has written several other books on brickmaking, among which may be mentioned "Modern Brickmaking" and "The Clayworkers' Handbook."

"Cement, Concrete and Bricks" was printed but a short time ago and includes the latest information on clayworking topics.

It is on sale, through "Brick and Clay Record's" Book Department, at $3.00, postage paid.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

Manufacture of Glazed Bricks (English Edition)	$2.50
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Address All Inquiries to

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445 Plymouth Court, Chicago, U. S. A.

Announcement

The General Offices and Works

of the

L. E. Rodgers Engineering Co.

are now located in

Zanesville, Ohio

The L. E. Rodgers Engineering Company, for many years located in Chicago, has moved to Zanesville, Ohio.

The constantly increasing business of the Company, that of designing complete Clay Product Plants, Waste Heat Dryers, and the designing and manufacturing of Waste Heat Dryer Equipment, together with the continuous widening of their field of work—now embracing all branches of the Clay Industry—made necessary increased facilities for properly and promptly caring for same.

Zanesville is centrally located to the Clay Industry of the Middle West.

The new offices will be spacious and the factory well equipped with all modern machinery.

These facts, together with that of excellent railroad facilities available at this point, combine to insure the rendering of prompt and efficient service to Clay Workers in all parts of the country.

L. E. RODGERS ENGINEERING CO.

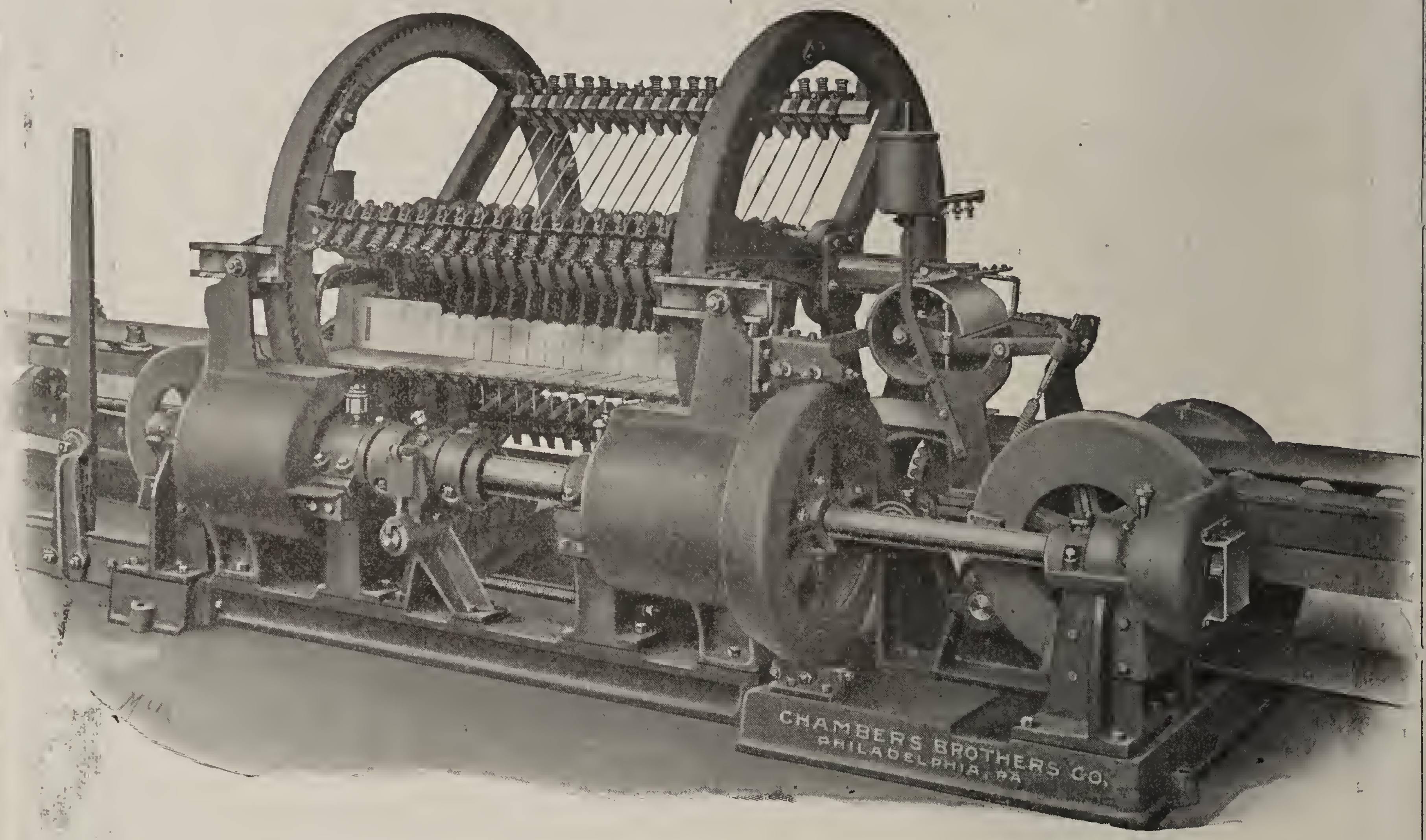
Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States

General Offices and Works Zanesville, Ohio

New Multiple Brick Cutter

That Does Not Swell the Clay Bar



Automatic Side Cutter No. 10, Built by

Chambers Brothers Co., Philadelphia, Pa.

A frictional driven Cutter for Brick or Block that starts promptly and stops at completion of its stroke without noise or shock.

Entirely free from knocker clutches or similar throw out devices.

Driven through an enclosed cone friction of ample diameter and so arranged that the slight lateral movement employed to disengage the friction members upon completion of a cutting strike applies a brake to the entire periphery of the floating member. The result is highly satisfactory.

All revolving parts of the cutting mechanism, together with the platen, are suspended from a stationary steel shaft, the reel hub being upon roller bearings. There is no running machinery beneath the platen, no track or wheels for the support of a carriage, and no parts into which chips can be thrown by the cutting wires. Pressure by one finger will move the cutter endways in either direction.

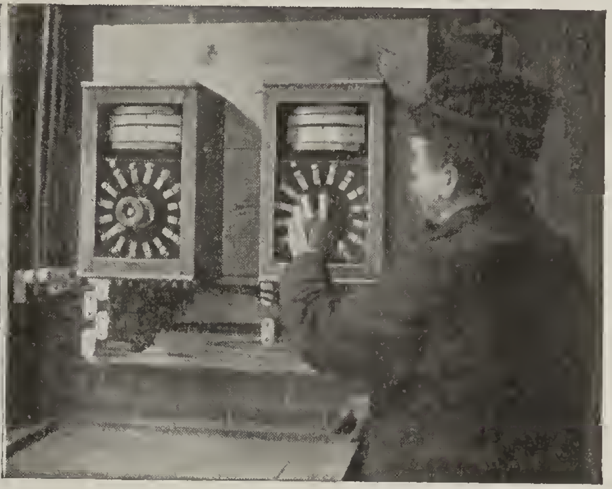
Observe the enclosure of all gears, not only for their protection, but as safe-guarding against accidents.

Speed-regulating features meet the requirements of machine output and of tender clays. Adjustments to meet various conditions are made without stopping the machine, and are absolutely within control. The underside of clay bar is lubricated by a new method, using only so much lubricant as is required. No slop and no needless waste. A strong, durable, well-built Cutter.

Another Plant Using Brown Pyrometers

Recording Instruments in Office.

View of Kilns.



Indicating Instruments in Business House.

The Metropolitan Paving Brick Co., Canton, Ohio, has equipped their Imperial Plant with Brown High Resistance Pyrometers. Indicating instruments inform the burners of the exact temperature at each end of the fifteen rectangular kilns, while recording instruments in the Superintendent's office make a record of the temperature, day and night. Brown Pyrometers are making good at hundreds of plants and the list is constantly growing. Why not give them a chance at yours?

Our 64-page catalogue is sent for the asking.

THE BROWN INSTRUMENT CO.
(ESTABLISHED 1860)
PHILADELPHIA, PA.
NEW YORK
PITTSBURGH
CHICAGO

The Light That Shines Ahead!

Keep Your Eyes and Mind Open

JUST one year ago the war cloud broke and spread over most of Europe in a day, and civilization was stirred as it never had been before since the beginning of time. Reason and prudence were trampled under the hoofs of madness and bitter hatred—men became insane with the lust of selfish desire.

Those were the days when strong hearts and mighty minds became the need of this great country of ours—and they were found! The weak—the pessimists—cried aloud that the day of Judgment was upon us, and the firebrands of war would spread over the world and consume every living thing! And the other extremists—the always-hopeful—were content to simply go into their cellars and await the passing of the storm.

But let us rejoice in the strong men of the nation who recognized the need of calmness and counsel, and a readjustment of affairs in both private and business life. To such men this country owes a debt of gratitude that can never be fully paid. They led us through a financial crisis that would have swamped weaker minds, and today we occupy a more stable position in the world's finances than ever before in our history.

Nature has also been wondrously good to us, so that we are already assured that our aggregate crops will far exceed those of any other year in all the past.

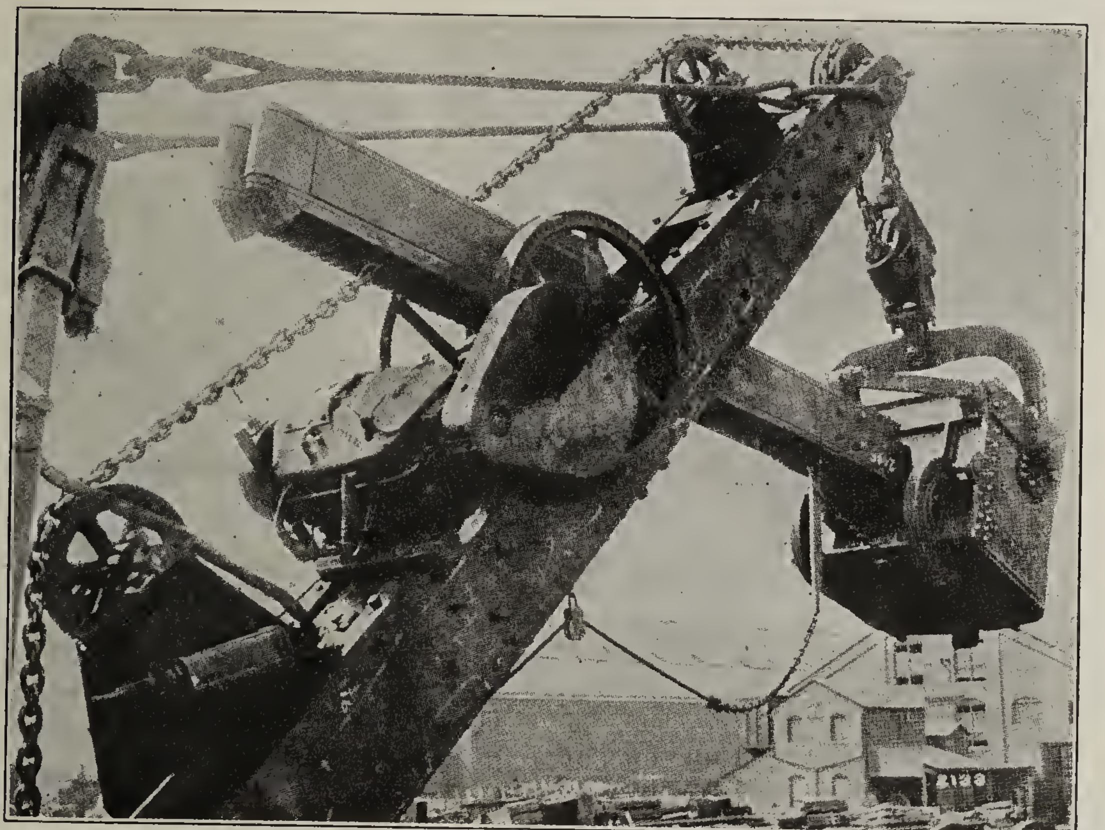
On every hand Optimism is pointing the way to bigger and better business than we have ever known. And this, regardless of the duration or termination of the war. From every direction reports are coming thick and fast of factories adding more help and increased orders being booked. PROSPERITY IS NEAR—that's assured.

And what of the strong men—the real Optimists who, through the columns of BRICK AND CLAY RECORD have demonstrated their faith through all these trying and troublous months? In the face of the business depression they have shown their confidence in the future by their continued advertising. They have missed no opportunity to tell you of new devices and methods for improving the quality or decreasing the cost of manufacturing your products. To them every reader of this publication owes a debt of gratitude that can best be repaid by giving to them all preference in your purchases. We submit this as a plan worthy of your most commendable thought.

And **right now** you should give heed to the Light That Shines Ahead. It's there—just keep your eyes and mind open and you'll see it. Order your new equipment **now** and be ready for the good times that are just ahead. Thus you will help yourself and do your worthy share toward helping others.

ELECTRIC SHOVELS

WHY
Pay for Hauling Coal
When Electric Power Transports Itself?



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YELLOW STRAND WIRE ROPE

B & B Tramway Systems
For Short Hauls

and small capacities, a simpler or more economical method of carrying material cannot be thought of than a B. & B. Tramway System of the two-bucket type. The buckets are self-locking.

Maybe a B. & B. Tramway would solve the problem of most economically handling material on your job.

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Broderick & Bascom Rope Co.
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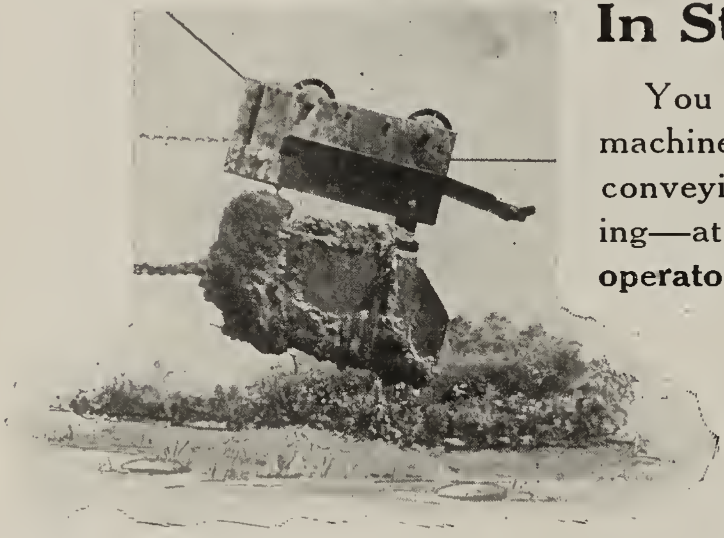

In Stripping Your Overburden—

You can replace a series of machines and equipment by one machine, which combines the three necessary features—digging, conveying (a distance of five hundred feet or more) and dumping—at any desired point—all under the positive control of **one operator.**

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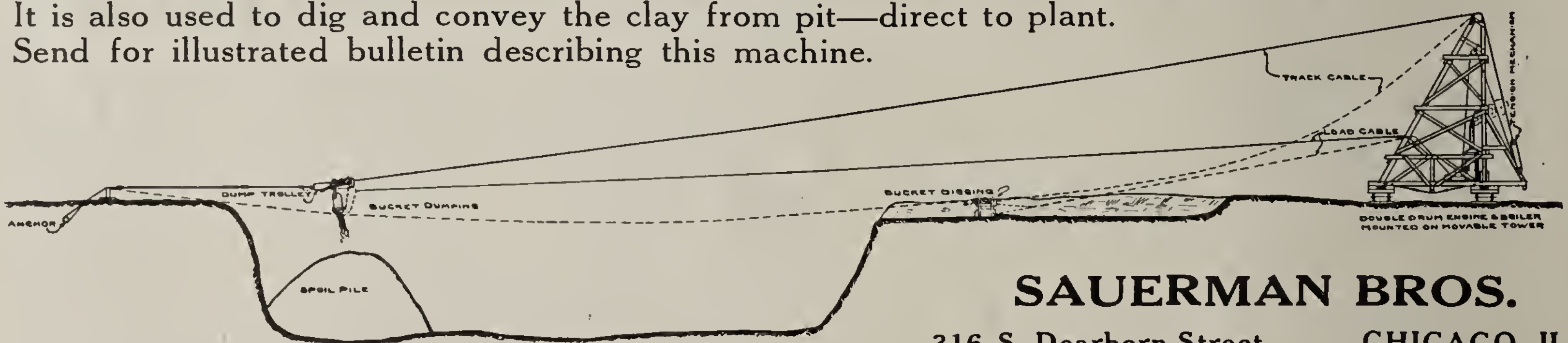
(Patented)

operated by a double drum friction hoist, and under the positive control of one man fulfills these requirements, and does the work more efficiently and more economically than any other known method.

It is also used to dig and convey the clay from pit—direct to plant.
Send for illustrated bulletin describing this machine.



SAUERMAN BROS.
316 S. Dearborn Street CHICAGO, ILL

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

WHILE THE WARRING NATIONS of Europe are altering the map of a continent, drawing the lines in blood, marking the boundaries with a hatred that will survive the sons of those who now direct, the United States of America is making some radical changes in its industrial map, drawing the lines with truth and marking the boundaries by human kindness.

We, who are fortunate enough to live beneath the Stars and Stripes, are going through a period of business uplift, the like of which was never known before—in any nation, nor at any time.

The latest, and possibly most potential of these movements, is that of the Associated Advertising Clubs of the World.

With "Truth" emblazoned on its banner, this organization has shown that exaggeration defeats its own purpose and has put new confidence in the men who, while they have believed that honesty was indeed the best policy, doubted the wisdom of meeting unfair competition with carefully guarded statements of individual, firm or product excellence.

And this is the movement that will save advertising, the greatest force in business (aside from truth itself) from ignominious failure.

Our great newspapers are refusing advertisements that tell of goods that are being "sold below cost." The patent medicine manufacturer, the promoter of mysteriously wonderful discoveries, the unloader of bogus mining stock and all of the powers that prey on the ignorant investor are made to come before the public with clean hands, and with legitimate goods for sale, making truthful statements of value.

The press of the country is hand-in-glove with the government in its effort to prevent the unscrupulous from exploiting the unsuspecting. This has been done, for the most part, by men who have adopted the simple and ancient process of first beholding the beam in their own eye, the better to see the mote in the eye of the man who signs the checks for advertising appropriations.

The writer of advertising, who has acted in the light of an advisor, has counseled truth. He has learned that untruthfulness made advertising unprofitable and, when advertising ceased to pay, his occupation as an advertising writer was gone.

The trade press is fast following in the footsteps of the periodicals whose circulations are in millions, rather than thousands.

And the readers of trade papers are coming to look upon the advertising pages of their specialized journals with the same confidence that has marked their perusal of the editorial columns ever since the specialized journal came into its own, as the guide post of the industry it serves.

No Need To Import Clay

A short editorial in the July 20 issue, calling attention to the fact that the German government had prohibited the exportation of clay to this country, has brought so generous a response that "Brick and Clay Record" feels warranted in stating definitely that the time is not only near—but here—when the United States will be free from the necessity of importing any of the raw materials that go into its burned clay products.

In this, the country is acting upon lines that can be seen in many industries, in which our manufacturers had grown so used to taking what was given them by foreign producers, as to give little encouragement to the development of their own resources.

Having faced the necessity of a complete shutdown, or the remodeling of their plants so as to produce something other than what had been their principal output, these manufacturers have seen the possibilities of their own country, and are, as a consequence, doing very nicely—thank you—without the aid of any of the people across the water.

In this fact lies a great promise. The disturbance that the European war has brought to American business, and the lean year that has come to it, instead of the fat year that was expected, will be repaid in many ways.

Prosperity, so long promised—and, by the same token, so long delayed—is due, and overdue. Money will be easy, credits safe, investments large, buildings many, profits big.

Best of all, there will be a host of enterprises "Made in America" because Europe went to war.

Something About Munitions

Peace advocates who believe that this government should put an embargo on the export of war munitions would do well to give some thought to the future of this country, without regard to the future of any of the nations now at war.

To look upon the United States as a country that is soulless, and willing to sacrifice any nation's life (other than its own) for the purpose of amassing wealth, is to be unmindful of the great work this country has done in making the world a better place for the human race.

In the Chicago "Tribune" an editorial writer says:

"We protect the right to sell (munitions) in order to protect the right to buy. We have for choice the German or the British policies. The one is to assure a sufficiency of war supplies by developing in times of peace a great munitions industry, maintained by selling its surplus to the world. That is the Krupp method. Its tremendous organization was made possible because the world markets were open to it. Now it is fully equal to the demands which German and Austrian emergency make upon it.

"The British policy is to rely upon the control of the sea for goods (munitions) as they are needed. This method showed its defects and the German method has revealed no imperfections. The demand of the allies upon the market was far in excess of the supply. It could have been satisfied only if Germany had been a neutral instead of a belligerent. If Great Britain could have bought in the German market there would have been a sufficiency of munitions.

"If we adopted the German method of preparedness we should need the right to sell. No adequate establishment could be maintained by the purchases which our government would make for its small force in time of peace.

"If we adhere to the British method we shall need the right to buy. The question is essentially one relating to the security of this nation. It must be answered with thought entirely of the good of the nation."

A Very Promising Youngster

One of the best examples of organized publicity that has, up to this time, been done by any association of manufacturers of burned clay, must be credited to the youngest of clay products organizations—the Hollow Building Tile Manufacturers' Association of America.

Although in its first year, this body of clay products men has been able to see that the future welfare of its members lay in the education of the builder, and has subscribed a sum sufficient to make a very considerable progress along that line.

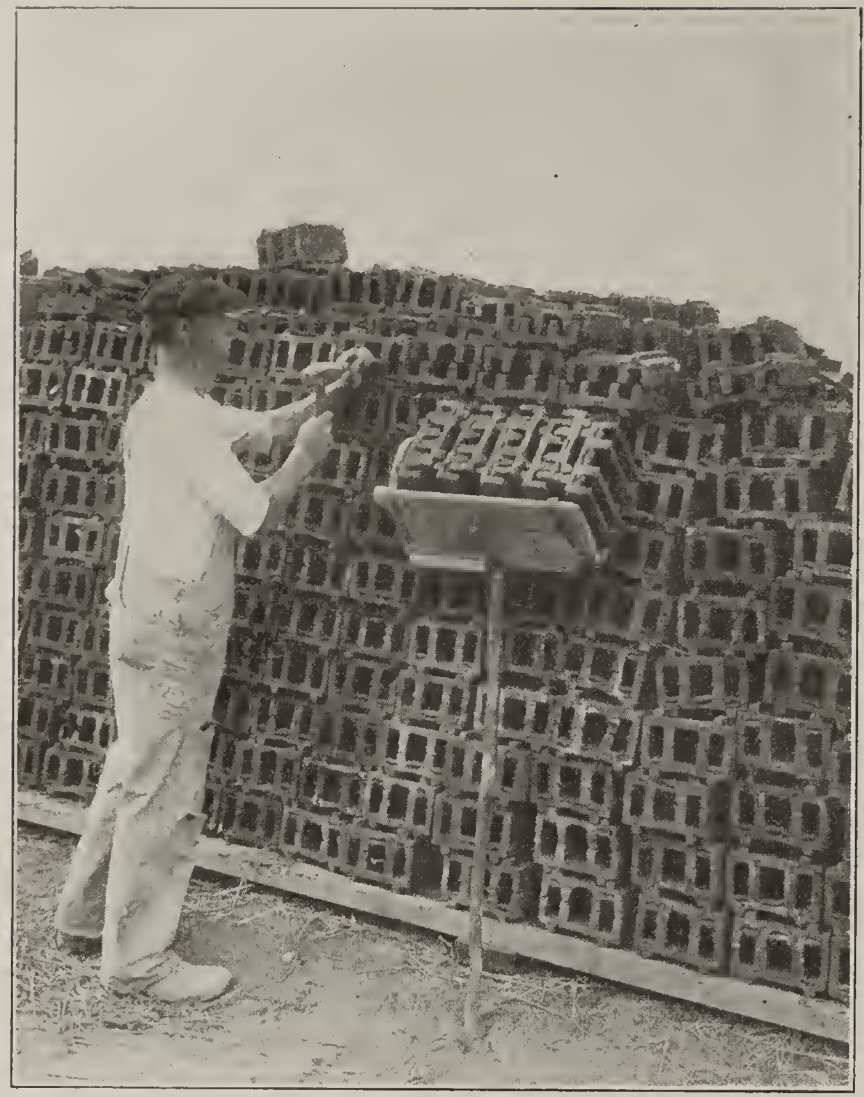
A trained publicity writer was engaged, and provision made for his personal contact with some of the plants that made the product and with some of the men who were using it. With the information thus obtained, he was able to offer periodicals that circulated among millions of prospective users of building material, illustrated articles showing instances wherein the use of burned clay hollow tile had been of great advantage to men whose conditions were very similar to those of the men who read the articles.

There was no attempt to discuss the merits of any particular type of hollow building tile, save that it was of burned clay. But the result of this publicity will be an increased market—which means less competition and better prices—for every man who makes and markets hollow tile.

The Newest and Best Open Price Policy

Showing How a New Product Finds an Old Use Under the Most Modern Selling Plan

ALMOST TWO YEARS ago, this magazine advocated the "Open Price Policy" in the sales of burned clay wares. With the exception of one or two instances, association effort in the clay field, along the principles advocated in Eddy's "New Competition" have been abandoned. Here is the announcement of an individual effort to stabilize prices on a patented type of burned clay building material which, if successful, will tend to revolutionize the methods of selling many kinds of building supplies.



The "Fisklock" Tapestry Brick

WHILE MANUFACTURERS of various burned clay building materials have formed themselves into associations for the "betterment of trade conditions"—which is a polite way of expressing "bigger profits"—one man, already a leader in the clay products field, has gone straight to the heart of the matter of controlling the selling price.

While associations have been formed on the Eddy "open price policy" plan, and are operating, today, perilously close to the point where they are "in restraint of trade"—one manufacturer of clay products has made the individual "open price policy" possible.

The man is J. Parker B. Fiske, of Boston, New York and America. The commodity is his own invention—the "Fisklock" Tapestry brick. The "open price policy" is expressed in the following words, that leave no doubt in the reader's mind as to the cause, the action, and the effect. In a circular recently sent to the trade he says:

"We have established an *open price policy,* sales being made to all parties at uniform, published prices, which are—for 'Fisklock' Tapestry Brick......$21.00 M., and 'A' size Tapestry Brick to match the 'Fisklock' Brick......$17.00 per M., carload lots, f. o. b. the factory. To these prices the cost of transportation must be added.

"The price on 'Fisklock' has already been published in the June issue of the 'Brickbuilder' and in the July issue of 'Architecture.' It will be published in the July 14 issue of the 'American Architect,' together with a statement that the price is uniform to all, whether the material is bought by the builder, direct from Fiske and Company, Inc., or by an agent.

"Discounts to agents will be made, as follows: On 'Fisklock' Tapestry Brick,......$3.00 per M., and on 'A' size Tapestry Brick to accompany the 'Fisklock' Brick———$4.00 per M.

"While the published prices on this material may be changed from time to time in accordance with cost of manufacture and market conditions, due notice of such changes will be made through the architectural press and each agent will be *advised sufficiently far in advance so as to reasonably protect him* and his customers on prospective work.

"We hope that the evils of the secret price, capriciously raised and lowered, and subject to discounts and 'rake-offs' to favored customers are sufficiently appreciated by our agents to make welcome the establishment of an *open price policy* in connection with 'Fisklock,' and it is our expectation that our agents will, of their own accord, adopt the open price policy in connection with the sale of 'Fisklock' to the builder.

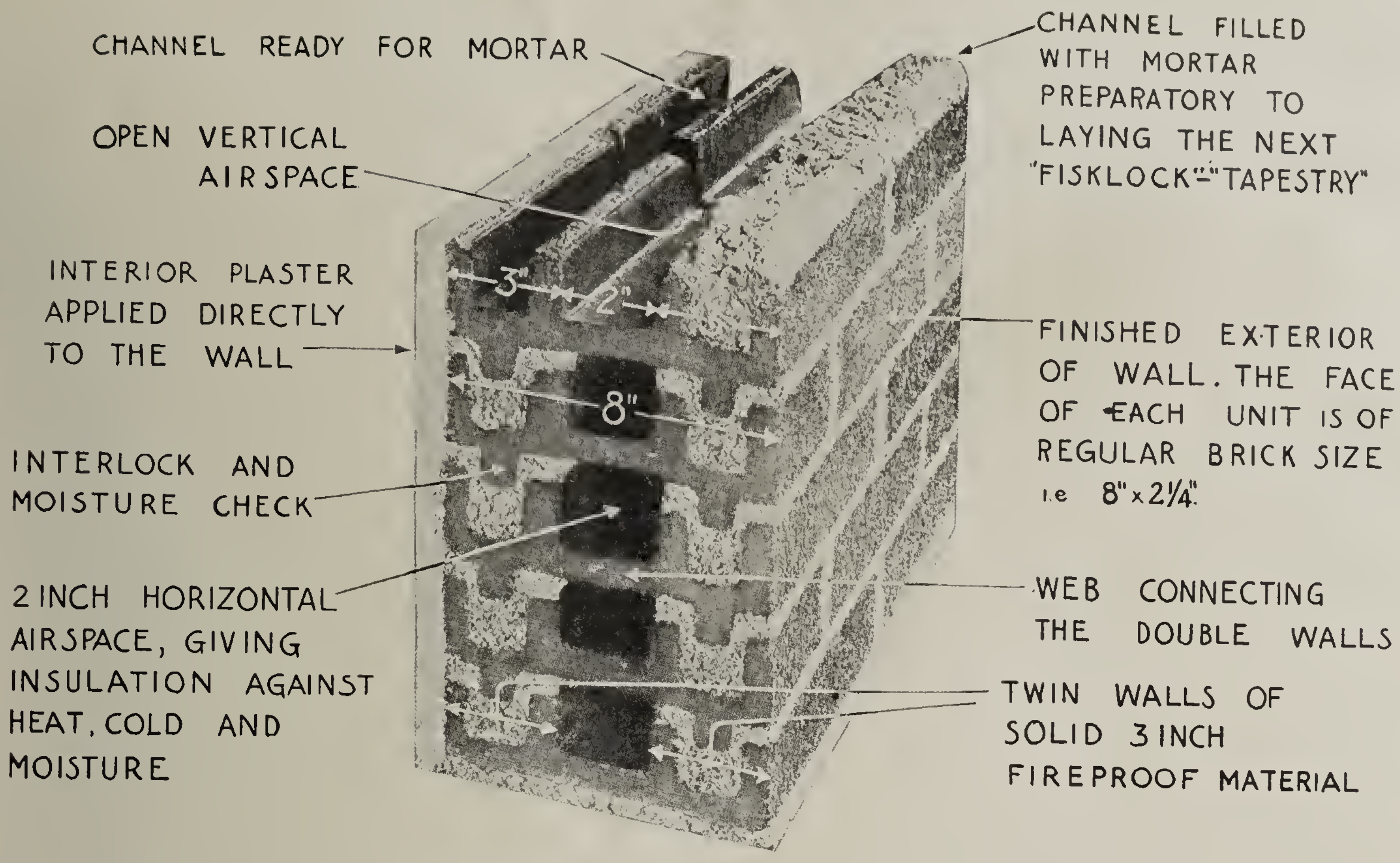
"In order that we may know that 'Fisklock' *is* sold under the open price policy, all orders sent us by our agents must state the price at which the 'Fisklock' Tapestry Brick and the accompanying Tapestry Brick (if any) have been sold to the consumer, with all discounts and rebates deducted. If the order has been sold at a price that nets the agent less than the established open and published price, then we reserve the right to refuse to fill the order, and to refuse to accept any additional orders for 'Fisklock' brick from the said agent—and to make such arrangements as to future sales of 'Fisklock' Brick in the territory covered by said agent, as we may deem fit."

It takes something more than an ordinary man to bring an innovation of this kind to an industry and it takes something more than an ordinary material to give him the courage to prevent sellers of burned clay from making cut prices. So, having known the man, the question arises as to the material.

WHAT IS A "FISKLOCK" BRICK?

Briefly it might be called a compromise between a brick and a hollow tile—exactly it is an interlocking channel brick.

It provides a double (eight-inch) hollow wall with a brick face, and this wall consists of two solid masonry walls, each three inches thick. These masonry (or mortar) walls are


CHANNEL READY FOR MORTAR
OPEN VERTICAL AIRSPACE
INTERIOR PLASTER APPLIED DIRECTLY TO THE WALL
INTERLOCK AND MOISTURE CHECK
2 INCH HORIZONTAL AIRSPACE, GIVING INSULATION AGAINST HEAT, COLD AND MOISTURE
3"
2"
8"
CHANNEL FILLED WITH MORTAR PREPARATORY TO LAYING THE NEXT "FISKLOCK"-"TAPESTRY"
FINISHED EXTERIOR OF WALL. THE FACE OF EACH UNIT IS OF REGULAR BRICK SIZE i.e 8"x2¼"
WEB CONNECTING THE DOUBLE WALLS
TWIN WALLS OF SOLID 3 INCH FIREPROOF MATERIAL

distinguished from the ordinary vertical mortar joint by their thickness and solidity.

These walls are separated by a two-inch air space and yet the whole is bound inseparably together by webs that are made integral with the brick itself. There are no metal ties to corrode or break or pull out. Every brick is both a "header" and a "stretcher."

It is claimed that a "Fisklock" wall has nearly double the strength of a solid wall made of ordinary common-brick and is more than twenty-five per cent stronger than a wall built of ordinary hollow tile.

It is a well known fact that dampness traverses a brick wall through the mortar joints—they being much more porous than the hard burned clay. It is claimed for the "Fisklock" brick that, having no continuous mortar joints through the wall, either horizontally or vertically, there is no possibility of moisture striking through.

The solid double walls separated by closed air cells provide a maximum heat and cold insulation. The air cells in "Fisklock" construction are horizontal, thereby eliminating internal air circulation which, it is claimed, is caused by the vertical air spaces in some hollow tile construction.

There are many claims that can be made by the inventors and patentees of "Fisklock" that it is idle to enumerate all of them here but those which follow will have, perhaps, the greatest interest for clayworkers.

PRESERVING THE SCALE OF BRICKWORK

The great drawback to the use of hollow tile, particularly in residence construction, is the necessity of coating its exterior with stucco or cement. While it is a well known fact that a rough surface tile has been put upon the market and that it has been used in isolated instances, its progress has been slow, for the reason that it has offended the public's idea of scale.

We are accustomed to brick size units—not only in residence work but in buildings of large proportions. When stone is used it seems that this idea of brick scale disappears, but as soon as a material having the same quality of color as brick comes to mind, it seems necessary that it conform to the accustomed brick scale.

This has been a hardship, as the eight-inch hollow tile wall has many claims to preferment, particularly in the building of houses of the bungalow type. After completion, however, it has nearly always been necessary to cover the surface of the hollow tile with cement stucco and the house, as a consequence, could not be told from its recently remodeled neighbor of flimsy frame construction, cement veneered.

"Fisklock" brick does not depart from the brick scale and a house constructed of this material has exactly the same appearance as though a solid brick wall were used with a face-brick exterior.

In a booklet describing the material, the patentees say:

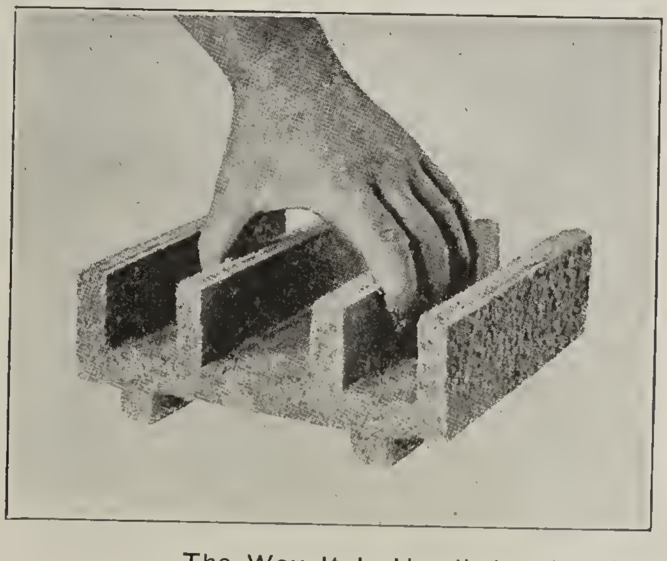
"A 'Fisklock' wall costs much less than any other face-brick wall, whether solid or brick veneered. It costs less than terra cotta hollow tile covered with stucco and only slightly more than stucco on frame."

A COMPREHENSIVE SALES SCHEME

Following the lead of successful men in other lines of endeavor, the inventor of the "Fisklock" brick intends to *create a demand* for it rather than depend upon the slow and expensive process of introduction by personal salesmanship.

At the same time, it is evidently his intention that his sales representatives *shall be such in reality as well as in name* and having offered an excellent profit if they will uphold the price, *he insists that they shall go after the business if they expect to get a profit on the business that is secured.*

This is very plainly stated in a circular which says that sales will be made direct by Fiske & Company, Inc., and it is fair to assume that agents will not be protected on sales made in their respective territories *unless they are sufficiently "on the job" to see to it that all orders for "Fisklock" brick are secured by them*


The Way It Is Handled

and sent in by them, and not allowed to go in direct from the contractor or builder who will pay for the material.

There is a considerable justice in this, because a dealer's relation to his customers should be sufficiently close to *insure their giving him their business* (rather than placing it direct) when they find that they cannot secure a better price by going over his head.

To offset a little of the feeling that may be caused among dealers who are selling "Fisklock" by the attitude above outlined, is the point that has already been alluded to—*that Fiske & Company, Inc., will do its part to create the demand.*

In a circular recently issued by that company the following statement is made:

"We are sending herewith preliminary data sheets and will shortly send a goodly supply of our new thirty-two page book fully describing 'Fisklock' brick, its advantages, details of construction, record of tests on strength, on resistance to fire and water and on heat conductivity, together with comparative cost tables and special points of interest to the contractor.

"At about the same time we shall send direct to every architect east of the Mississippi River a copy of this book and upon request, a list of our regular agents."

MADE LIKE A HOLLOW TILE

One of the illustrations shown in this article gives an idea of the way the "Fisklock" brick looks when delivered to the building. It will be seen that it resembles a hollow tile with lugs at top and bottom. It is, however, split with a wire before it is dried and this leaves the tile in such shape that a sharp blow separates the "Fisklock" brick into two pieces. This is particularly interesting as it shows how it is possible for this seemingly frail piece of clay to travel for many miles and suffer the wear and tear of teaming and yet arrive at the building in perfect condition.

Much that is said in connection with the laying of hollow tile can be said truthfully of the "Fisklock" brick. By reference to the illustration, the ease with which this brick is handled will be understood. The bricklayer holds a "Fisklock" brick in his left hand while carrying the trowel in his right, exactly as in the case of the ordinary brick. He takes up the brick by gripping the two inside webs between thumb and finger, the brick being so designed that the width of the grip is almost identical with that of the ordinary solid brick. Each time the bricklayer stoops down and picks up a "Fisklock" brick he is picking up a face-brick and a common-brick. Several journeymen bricklayers have mentioned that the "Fisklock" brick is the bricklayers' friend, because in handling it he has to stoop down only half as many times a day. *Editor's Note: It is evidently not the bricklayers' intention to lay any more wall surface on account of the advantage in size.*

There is a distinct economy, however, in the number of these brick that can be placed in the hod. A "Fisklock" weighs 6½ lbs. and laid in the wall replaces an ordinary face-brick and an ordinary common-brick, the combined weight of which would be more than 10 lbs. The bricklayer —even the journeyman above alluded to—may be induced to lay up a greater amount of wall surface than he is at present doing and without requiring any advance on his already high wage per day.

QUANTITY OF MORTAR REQUIRED

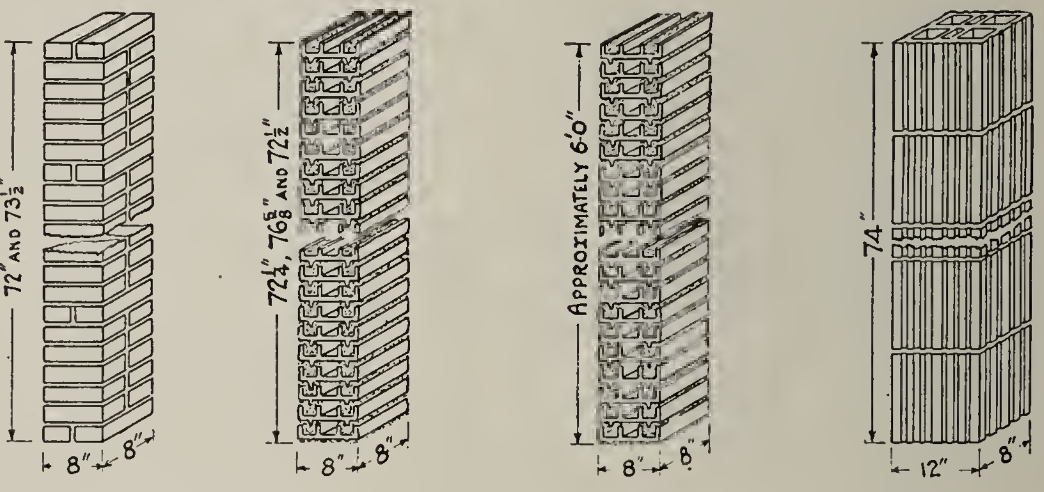
At first sight it might appear that an excessive amount of mortar is required. This, however, is not the case, because of the fact that the mortar joints both horizontal and vertical are omitted for two inches in the center of the eight inch wall. Careful calculations show that the increase of mortar is not more than five per cent.

TESTS SHOW GREAT CRUSHING STRENGTH

The table of tests that is given below is taken from the book which Fiske & Company, Inc., is sending to the architectural profession. A study of it will reveal the strength of the claims that the inventors and patentees are making for consideration in building codes and to the Fire Underwriters. It is noted that "Fisklock" is termed "brick" and it is proposed to claim the same, or greater consideration for it, as is given "brick" in city ordinances. This position is made more tenable each time a building commissioner admits "Fisklock" brick as a substitute for ordinary brickwork, without submitting it to penalization.

NOTE:
TEST No. 1 to 5 AND 9 to 11 (incl.) WERE MADE AT THE ENGINEERING LABRATORY OF COLUMBIA UNIVERSITY AND TEST No. 6, 7, AND 8 WERE MADE AT THE MASS INST. OF TECHNOLOGY

NOTE:
AGE OF TEST ON COMMON BRICK, "FISKLOCK" AND HOLLOW TILE - 60 DAYS.
MORTAR JOINT THICKNESS - 3/8"
MORTAR - 1-PART PORTLAND CEMENT 3-PARTS SAND



KIND OF PIER	COMMON BRICK		"FISKLOCK"-"TAPESTRY"			"FISKLOCK"-"TAPESTRY"			HOLLOW TILE		
TEST No.	1	2	3	4	5	6	7	8	9	10	11
Thickness of pier in inches	8	8	8	8	8	8	8	8	✦ 8	✦ 8	✦ 8
Width of pier in inches	8	8	8	8	8	8	8	8	✦ 12	✦ 12	✦ 12
Height of pier in inches	72	73½	72¼	76⅝	72½	72±	72±	72±	74	74	74
Gross Area of pier in sq. inches	64	64	64	64	64	64	64	64	94	94	94
Net Area of pier in sq. inches	64	64	48	48	48	48	48	48	✦ 50.	✦ 50.	✦ 50
First crack	45000	44500	85000	80000	63250	80000	70000	43000	107000	64000	63100
Maximum load in pounds	46200	57680	111340	92800	86400	117000	84000	90000	116200	116450	105000
Max. load per sq inch Net	722	902	2320	1934	1800	2438	1750	1875	2324	2329	2100
Max load per sq inch Gross	722	902	1740	1450	1350	1828	1313	1406	1236	1239	1117
AVER LOAD PER SQ. FT. GROSS AREA	58.4 TONS		109.0 TONS			109.1 TONS			86.2 TONS *		

* NOTE: THE STRENGTH PER SQUARE FOOT (GROSS AREA) OF 10" AND 12" HOLLOW TILE WALLS IS OBVIOUSLY LESS THAN THE ABOVE, AS THE PROPORTION OF VOIDS TO SOLID MATERIAL IS GREATER

✦ NOTE THESE FIGURES ARE APPROXIMATE

Let Us Tell You What Happened—

SOMETHING LIKE TWO-THIRDS of the membership of the American Face Brick Association found time to attend the midsummer conference recently held at Detroit, Mich., and noted in the July 20 issue of "Brick and Clay Record." Representatives of the Alumina Shale Brick Company, the Beaver Clay Manufacturing Company, the Belden Brick Company, the Claycraft Brick Company, the Claycraft Mining and Brick Company, the Darlington Brick and Mining Company, the Everhard Company, the Hydraulic-Press Brick Company, the Ironclay Brick Company, the Jewettville Brick Company, the Kittanning Brick and Fire Clay Company, the Thomas Moulding Brick Company, the Puritan Brick Company, the Ridway Brick Company, the Stark Brick Company, the Toronto Fire Clay Company and the Western Brick Company, were present.

S. C. Martin, president of the Kittanning Brick and Fire Clay Company, of Pittsburgh, and representative of the face-brick interests of the country in the National Association of Commerce, reported for the Special Committee on Loading, of which he is a member. Extracts from this report, and an illustration of the method of loading face-brick that is recommended, appears on another page of this journal.

The next members' meeting will be during the coming winter, the date and place of holding not having been, as yet, decided upon.

Another "Build with Brick" Contest

The Rector (Ark.) Brick and Tile Company evidently took a leaf out of the Decatur (Ill.) Brick & Tile Company's book when it inaugurated within the past month, a competition among the scholars in the Rector schools, through which, by writing an essay on "Why Build With Brick?" Charles Rondall Yates, a fifteen-year-old student in the High School, won first prize.

His essay, which contains some very good thoughts, is given below in its entirety.

WHY BUILD WITH BRICK?

The art of making and using brick dates from more than 6,000 years ago, according to history, when the ancient cities of Babylonia were erected. Babylon is still marked by huge mounds of brick, the ruins of its great walls, towers and palaces, although it has been the custom of centuries to carry away from these heaps, the brick required for the building of the modern towns in the surrounding country.

Babylon was a city built to stand, and architects used in its construction the most durable of all building materials—brick. The great Wall of China, the bases of the Pyramids of Egypt, built in the time of Israel, still stand, and are good examples of the durability of brick.

Why build with brick? That is the question. Because brick is the one and only material which meets the demands of the present-day builder—strength, health and comfort, beauty and economy.

The question is often asked by prospective builders, "What material will best stand the test?" By way of answer, we shall compare. Wood, in the course of a few years, decays; and stone will gradually crumble and peal off, leaving an ugly surface. Brick will not warp, crumble or decay, and at the end of the coming generation the house built from brick will stand a monument to the good judgment of the builder.

In the year 210 B. C. the Italians discovered and put into use, the art of decorative brick, and a home, mansion palace or business house may be made magnificent by the use of the enameled colored brick.

We find by close estimating and conference with leading Rector contractors that the cost of building with brick is about 10 per cent more than building of wood and a great deal less than of stone. When the brick building is done, and paid for, the expense ceases, but the wood structure must be repaired, repainted, and almost all the time some money put out on its upkeep. In six years the cost of paint and repair work would exceed this 10 per cent difference. The brick house, when sold, will bring a neat sum, whether new or old, since age helps to strengthen it.

The matter of insurance is an item worthy of consideration when thinking of building, since the rates are much lower on houses made of brick.

Outside of water, brick is the greatest fire preventive of today; the walls are thick and solid, giving more time for our "eternal bucket brigades" to do their work. This same thickness of walls makes the brick house the most comfortable at all times, the heat and cold not being penetrable, making them warmer in winter and cooler in summer.

Since this is an age and generation which must countenance health and economy, and one which worships comfort and beauty, we are rapidly becoming educated to the fact that Brick is the one material to use in the construction of our homes and business places.

Ohio Workingmen's Compensation Act Amended

A number of changes of considerable importance in the Ohio workingmen's compensation act, designed to meet legitimate objections which have been advanced against this law in the past, have been announced by the State Industrial Board, principally affecting the rating system. In the future, under the new rules, it will be impossible for a single disaster or big accident, involving a number of deaths or injuries in any industry, to result in an undue increase in the compensation rate in that industry, as the new rules provide that not more than a twenty-four per cent increase shall be made in any period of six months. Heretofore, in several instances, considerably larger increases have been made as the result of unfavorable experience during a given period of six months, but this will not be the case in the future. Fixed charges of $500 for death and $1,000 for permanent total disability, to be paid by individual employers, in the nature of a penalty, have also been discontinued, as it was felt they were not in harmony with the spirit of the law, which is to distribute the burden of injuries and losses over the entire industry. With the changes indicated, and others of the same general nature, it is believed that the operation of the law will be even more satisfactory in the future than it has been in the past.

Refractory Efficiency Engineering

A booklet has been issued under the above title, which is written by J. D. Ramsey, President of the Elk Fire Brick Company, St. Marys, Pa. It explains its purpose in the first sentences that one finds on opening its very attractive cover; there one finds:

"Refractory Efficiency Engineering is that branch of ceramic engineering which deals with the manufacturing and correct use of fire-brick and other refractories as they are affected by chemical, metallurgical and mechanical application. In presenting this booklet to the fire-brick trade, we will endeavor to bring a few facts to the attention of the consumer which, we hope, will prove beneficial to all concerned. We do not propose to do more than draw the attention of users of fire-brick to the benefits and necessity of refractory engineering. The subject is too broad to dwell at length upon anyone phase of the matter or to enter into details with relation to the manufacture or use of fire-brick."

Beginning with descriptions of fire clays, this book carries the reader through the processes of making fire-brick and refractories, touching upon the soft-mud, dry-press and stiff-mud practice. It takes up the questions of sorting, loading and distribution and has some interesting things to say in connection with the injurious problems of the "uneducated fire-brick salesman."

Perhaps to help somewhat along the line of sales education chapters are devoted to the uses of fire-brick and conditions which may affect its life and usefulness.

After having given a goodly amount of really very good advice gratis, the company issuing "Refractory Efficiency Engineering" speaks for itself and its own materials and policies, concluding with cuts of all nine-inch and standard nine-inch series fire-brick adopted by the Refractories Manufacturers' Association and made by this company.

"Refractory Efficiency Engineering" is a valuable addition to the literature of fire-brick.

A Missing Word Contest

Some time since, an inquiry came into this office, relative to the amount of brick pavement that was being "laid with brick, as compared to the amount that was being laid with block." The writer wanted some information which would draw a sharp line between a brick about 2½ inches thick (or less) and a brick 3¼ inches thick (or more).

Paving-brick manufacturers are fortunate in not having made the mistake of allowing the word "paving-block" to stick to their product. The word "brick" means more than "block" when we talk about any constructional material, for it conveys the idea of hard burned clay.

The manufacturers of "burned clay hollow building tile" and of "terra-cotta fireproofing" would have done well, had they called their material "hollow brick."

Now, however, that the difference has been marked, and a lot of money spent in advertising the merits of various forms of burned clay constructional material—somewhat to the disadvantage of burned clay—there is a chance for some good inventor of words, or of word combinations, to give the industry a term that can be used to tell a man the best material to use in building his home or his factory, and to mean both brick and hollow tile—leaving the choice to him. He knows which of the two is best for his purpose, which is cheaper and which is the easier obtained.

Now we might say "———— ———— ———— ———— ————" or something like that, but we would like to know what *you* would say. Supposing you made or sold both brick and hollow tile, and you wanted to do some advertising—what slogan would you use, which would mean both materials?

"Brick and Clay Record" will acknowledge gratefully, and reward suitably, the man who coins a word or word combination that is really worthy.

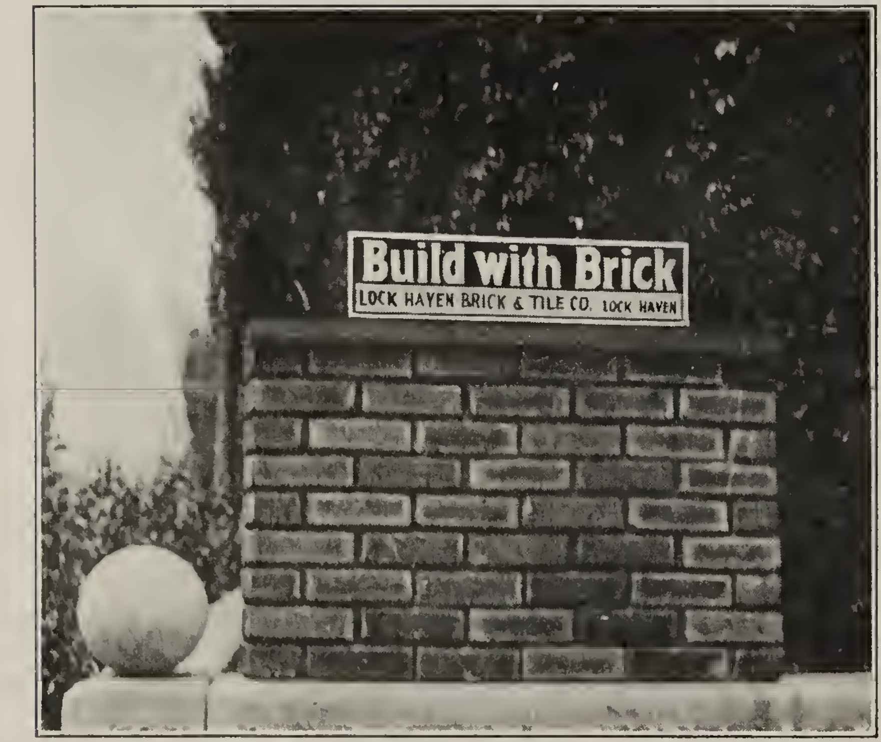
Defends Brick Sidewalks

A Baltimore citizen, who is not afraid of being classed as a back number, comes boldly to the defense of brick sidewalks, declaring that in residence districts of a city, at least, they are preferable to concrete. He offers three reasons for this belief, two of which are generally applicable, while the third has but occasional fitness.

The argument, first offered, according to the "Indianapolis News," is that on the street in which he is especially interested some of the most beautiful old trees in Baltimore are to be found. Great care has been taken to protect them, but the laying of concrete sidewalks would menace, if not destroy, their life and beauty. That he is right about this has been demonstrated over and over again in Indianapolis, whose trees are by no means in the flourishing condition they were before concrete walks came into fashion.

His second objection is to the glare of these white concrete walks, and every one knows that an asphalt paved street with concrete sidewalks is a painful spectacle when the sun beats down upon it. Whatever may be its merits, it is not pleasing to sensitive eyes. The occupant of the motor car and the pedestrian alike are glad to escape from the glaring white stretches.

The third objection raised by the Baltimore gentleman is of an esthetic character and grows out of the fact that the neighborhood now threatened with an irruption of concrete is one of old time residences and the new pavement would be out of keeping with it.

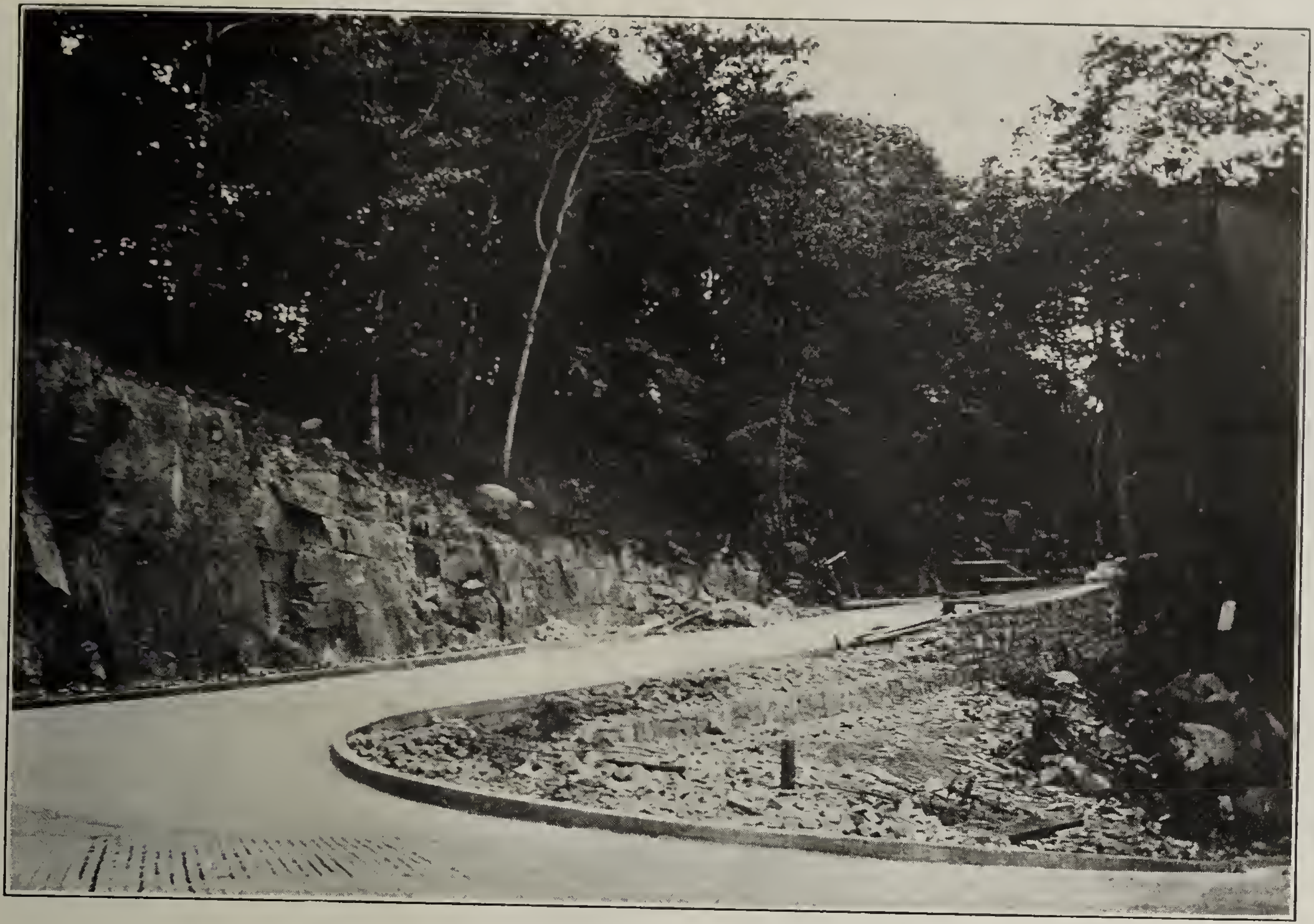


An Inexpensive but Effective Sales Talk

Beauty as an argument for the use of brick in home-building is well brought out in the novel and effective advertising "stunt" shown in the accompanying illustration.

This panel is composed of rough-textured brick which have been laid near a corner of the garden wall which surrounds the home of one of the officers of the Lock Haven (Pa.) Brick and Tile Company. The brick range in color from a deep, rich red to olive and an unusually large number of intermediates is enhanced by the fact that many of the individual brick have the entire color range; that is, starting with an olive center, the color shades out toward the edge until it is a real red. The brick are laid with a three-eighths inch black mortar joint raked out three-eighths of an inch, the effect being very beautiful.

Facing on the main street of the town, this panel attracts the attention of every passer-by who stops to admire its beauty, incidently being offered the suggestion that he build his home of this same material.



One of the Numerous Turns in the Brick Road Up the Palisades

The Palisade Path of Brick

Carving Solid Rock, Brick Road Builders Conquer the Heretofore Insurmountable Cliffs Lining the Historic Hudson

By E. A. Cosse

THE PALISADES INTERSTATE PARK Commission now engaged in developing a park extending along the west side of the Hudson river from Fort Lee, N. J., to Newburgh, N. Y., and containing 20,000 acres, has set its mark of approval upon brick by paving the New Englewood approach with hillside brick. Automobiles climb the Palisades, rising 330 feet in going 4,300 feet, on the high gear, the motorcycles and horses climb it quite as easily. It is a marvel of road construction.

It was on July 23, 1912, that the construction contract was let to the Miles-Tighe Contracting Company, Newark, N. J. The first day of the following September the work was begun. On June 25, 1915, the road was dedicated and thrown open to traffic.

That seems a long time to build 4,300 feet of road, and it is, but the difficulties overcome and the obstacles encountered have justified the protracted period. For at least one-third of the distance, the road was blasted out of the tough blue Palisade trap rock cliff, in some instances as much as one hundred feet in sheer descent. In places the road turns upon itself so sharply that the wall is almost perpendicular between two elevations one hundred feet apart.

Again, under the terms of the contract trees and growing shrubs could not be injured. And this meant slow work. The blasting was done by drilling small holes and using light charges to shatter the rock. It was then worked out with bars, a tedious, but safe method.

The road is twenty-one feet wide about one-half the way and eighteen feet the remainder. The turns are ninety feet wide. The grade on the road is seven and eight per cent and on the turns, one per cent. Watson G. Clark, of Tenafly, N. J., made the plans and Adam Ziegler was resident engineer in charge of the work.

The original bid was the lowest of six, and was $145,000, but subsequent changes increased the cost to $200,000, or well toward $50 a foot, money like time being consumed in the difficulties of the grade. The commissioners have begun grading the Hendrik Hudson Drive, which is to run along under the Palisades not far from the river all the way through the park. Years will be required to complete it, but the generosity of private individuals who desired to save the Palisades and the liberal appropriations of New Jersey and New York legislatures have given the commission over seven million dollars to work with. Mrs. Mary Harriman, widow of the late E. H. Harriman, gave all of Bear Mountain and one million dollars in cash. The late J. Pierpont Morgan gave another million. George

W. Perkins, president of the commission, has given very liberally. And a great many others, some of whom are not even residents of either New Jersey or New York, but have a sentimental interest in having the Palisades preserved.

The five-inch concrete base which was mixed 1:2:4 was laid from both ends toward the crusher. Sand and cement were delivered at the dock by barges unloaded by men with wheel barrows and hauled by wagons up the hill to the place of construction. Stone was hauled in wagons from the crusher and dumped along the road at convenient intervals. The sand and stone were transported from the piles by barrows to the mixer. For most of the work a gasoline driven mixer, with a capacity approximately one-fourth cubic yard per charge and a crew of fifteen men were used, three spreaders, two wheeling stone, two filling barrows, one hauling cement, one wheeling sand, one shoveling sand, three wheeling concrete, one engineer and one foreman.

Grading the Bottom of a Cut, the Walls of Which Have Already Been Finished. From This Picture Some Idea May be Gained of the Difficulties Encountered in Building This Most Unique and Picturesque Road

The mixer was kept thirty to forty feet from the point where the concrete was being deposited and the barrow men used running planks as tracks.

There are no tangents on the road and the width varies at all points, hence it was impossible to use templates to give the correct elevation for laying the base. Instead, strings were stretched across the road and distances were measured down at the quarter points and grade strings supported on iron stakes and stretched parallel with the road gave proper elevations. The crown was obtained by figuring two per cent of one-half the width of the road.

Two of the spreaders worked with hoes, leveling the concrete, another worked with a heavy brush and a fourth with a tamping iron. When working up hill the three barrow men were not needed for the mixer was equipped with a thirty foot chute.

The brick was shipped by barge to the foot of the road, and then unloaded by men in barrows and piled along the river front. Care was exercised in handling and loss from breaking was very small. The brick were distributed by wagons along the road, employing half a dozen men. Four men took the brick from the piles, and two were in the wagon. When unloading the operation was reversed.

The specifications were those of the National Paving Brick Manufacturers' Association. On a sand cushion one inch thick, after rolling, hill-side blocks were laid. Three or four layers were employed and from fourteen to sixteen men were utilized in the laying gang, one making bed, two assistants, three layers and nine helpers. The helpers carried the brick to the layers in their arms, four at a time, depositing them just behind and within easy reach of the layers. The average day's work for one layer was 400 square yards, or about 18,000 brick. In all about 11,000 square yards were required and the cost was $2.65 per square yard.

A Portion of the Road Where it was Necessary to Blast a Wall Nearly One Hundred Feet in Height, Rising Almost Perpendicular from its Base. Just One of the Many Engineering Problems Involved in This Work

The lack of tangents caused trouble in carrying forward the alignment of pavement points. Instead of laying the courses radially, which would have necessitated joints of unequal thickness, V-joints were placed at intervals of about twenty-five feet.

After laying, the pavement was rolled with a five-ton steam roller and after inspection, grout filler, mixed 1:1, was applied, in two coats, the first thinner than the second, and was allowed to settle into the joints. Before this set a second and stiffer coat was applied and squeezed in. No special protection was given. Owing to the grade the grout box was not equipped with legs of unequal length, the slope of the road tilting it sufficiently.

The road is reached from Palisade avenue, Englewood, N. J., and by ferry from Dyckman street, New York. As an example of the use of brick in a very difficult situation this piece of road is one of the best of recent testimonials to the art of the brick road maker. It should convince skeptics of the value of brick, even in the most trying places.

The gears of business machinery run easier, because of the helpful advice, the good word, the generous praise of men who take their pay in **just being good fellows.**

If you see some really good article, some valuable suggestion, some attractive advertisement in these pages, will you—**please** ⟶ SAY I SAW IT IN BRICK AND CLAY RECORD

Loading Brick in Cars

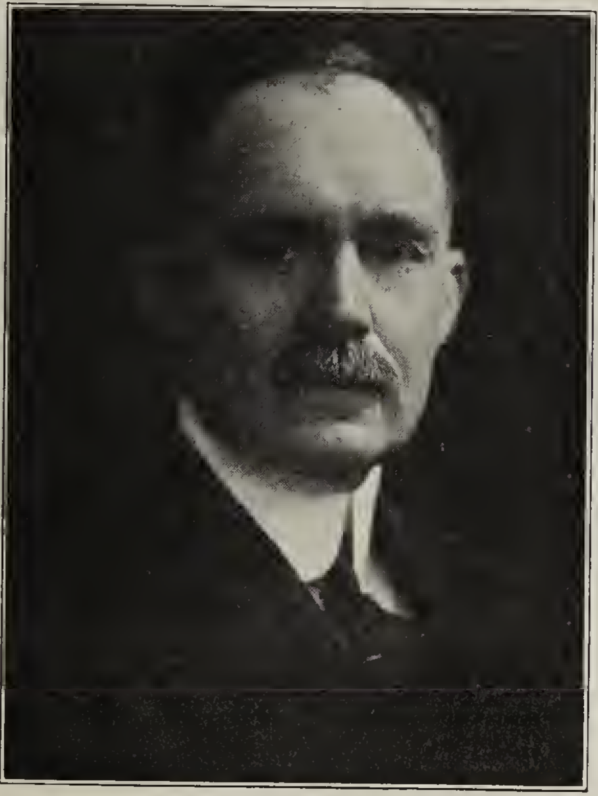
New Rules Being Adopted Governing Loading Brick in Railroad Equipment Make Knowledge on the Subject of Great Importance to the Manufacturer

IT IS AN OPEN QUESTION whether one brick manufacturer in ten ever heard of the M. C. B. A.—which is short for Master Car Builders' Association. It is also in doubt whether, having heard, the said brick manufacturer would give two whoops in his hottest kiln, as concerning the aforesaid M. C. B. A.

But—like a lot of other things that happen—the M. C. B. A. is the unexpected. Just at the present time, it is voting on a proposition that may add from 85c to 90c to the freight charge on every car of brick that you ship—or, in another contingency, something like $2.00 to $2.50 per car.

Now a plant that ships only a car or two a week wouldn't be hurt much, unless you figure that $2.00 a week is as much to that plant, proportionately, as $100 a week would be to a plant that shipped eight or nine cars a day. But at any rate—these are the facts.

The Master Car Builders' Association, composed of all of the railroads in the country which amount to anything worth considering, formulates and agrees upon loading plans for any material which is liable to shift while in the car. Last year, the Master Car Builders' Association adopted rules for all brick that were less than fifteen inches in length (without door protection), which, if the brick manufacturers had been forced to use them, would have materially increased the cost of loading, and, some experts believe, *increased the ever-present liability of arriving in bad order.* At that time, a great deal was said about the folly of allowing rules of this kind to go into effect— rules that are as binding upon a shipper as is the freight rate itself—without some advice having been taken from the men who made the stuff and who knew how to pack and ship it with the least possible chance of breakage.



SHERWOOD C. MARTIN,
Member A. F. B. A's. Committee on Loading

For several months, last year, some of the roads insisted that, if manufacturers did not load their face-brick in accordance with the Master Car Builders' Association rules, they—the brick manufacturers—*would have to board up the car doors* at a cost of something like a dollar a car.

Following that, instances came to light where cars had been opened at junction points and *boarded up by car inspectors,* a charge of from $2.00 to $2.50 per car being made for the "service" and this amount added to the freight that was collected at the destination before the car was released.

The present tendency of the railroads is to decline all concessions that would work, in any way, to reduce revenues. This tendency is followed when it comes to a question of reducing expenses, and the railroad companies have the legal right to prescribe rules for loading carload freight. Of course, these rules must be "reasonable"—and sometimes they are. Then again—they are not.

The American Face Brick Association anticipated the strict enforcement of new and possibly impracticable loading rules, and more than six months ago appointed a special committee, consisting of E. E. McCoy, D. J. Kennedy and S. C. Martin.

No less than five plans were proposed by this committee to the Master Car Builders' Association—or rather to that association's Committee on Loading Rules, with the result that a vote is now being taken by the Master Car Builders' Association on a system of loading brick that is binding upon shippers of all kinds of brick, and which, *but for the activity of the American Face Brick Association, might have been drawn up by men who knew little or nothing about face-brick—or about any kind of brick.*

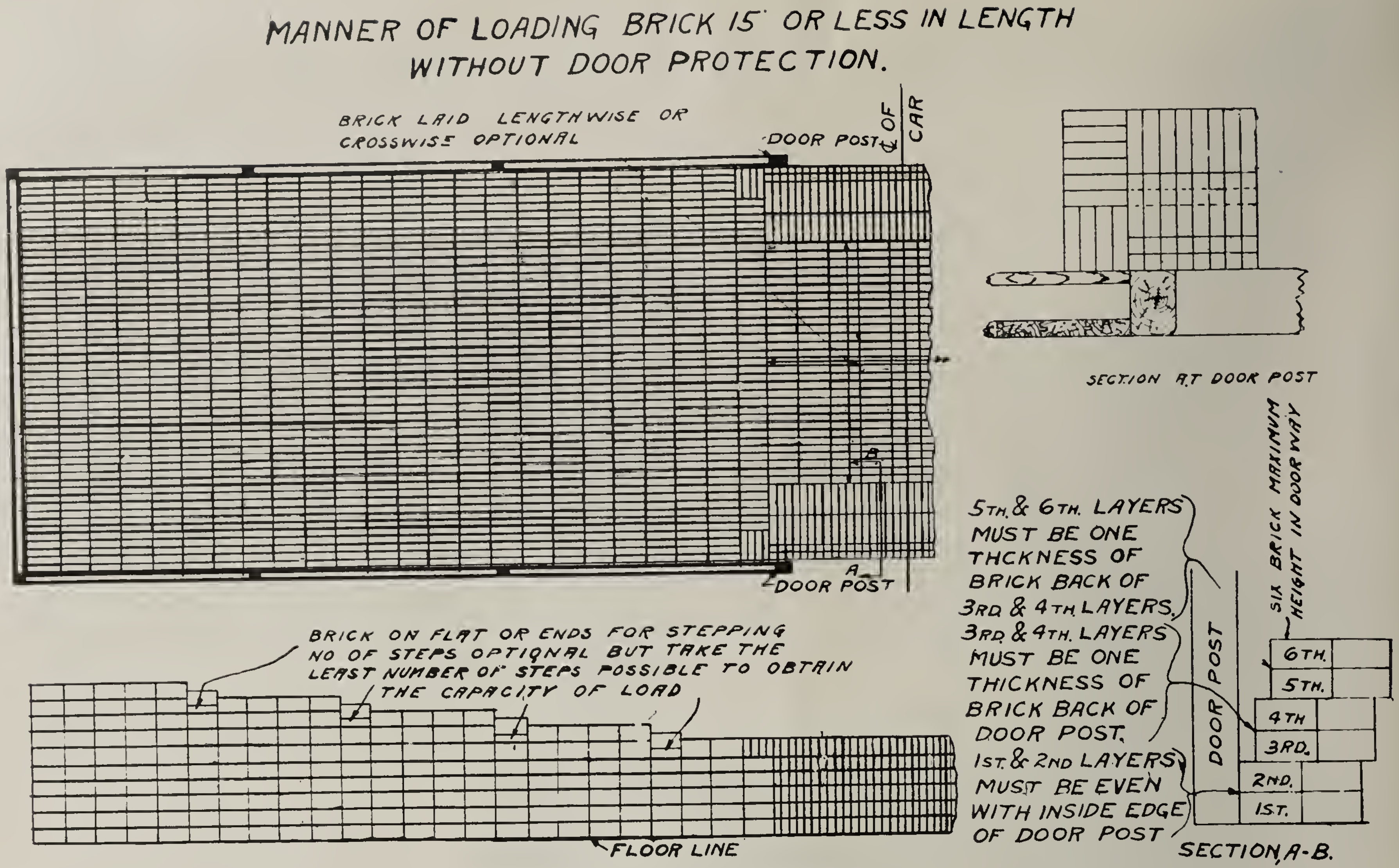
The Master Car Builders' Association committee is composed of some twelve or fifteen Master Mechanics, Car Inspectors, Superintendents of Motive Power and such officials, employed by prominent railroads in each general section of the country. Nearly the full strength of this committee accompanied representatives of the American Face Brick Association, on two separate visits to plants producing face-brick, so that the contentions made by the face-brick manufacturers might be proved.

If the loading rules so proposed are adopted, they will become binding at a very early date, and every manufacturer of face-brick will be bound by them. For that matter, they will be equally binding upon common-brick and fire-brick, provided the latter is less than fifteen inches in length—and on paving-brick.

For that reason, the accompanying sketch is published, as it shows the proposed plan of loading. It will be noted that the method of loading at the door has been somewhat changed. In every case so far noted, where manufacturers have used the new method, they have given it their hearty approval. Latitude is given the shipper as to the number of steps he shall use, and as to whether the brick loaded between the doors shall be half stretchers or all headers. Those who prefer to break joints at the ends of the car can do so if they so desire.

The American Face Brick Association, in a circular sent out to its membership on July 28, says:

"The Association earnestly suggests the immediate adoption of this loading plan by all members. It is believed that the universal use of this plan will reduce damage to loads and to railway equipment. In undertaking to load contrary to plan in question, bear in mind the liability of


MANNER OF LOADING BRICK 15" OR LESS IN LENGTH WITHOUT DOOR PROTECTION.
BRICK LAID LENGTHWISE OR CROSSWISE OPTIONAL
DOOR POST
℄ OF CAR
A
B
DOOR POST
SECTION AT DOOR POST
BRICK ON FLAT OR ENDS FOR STEPPING NO OF STEPS OPTIONAL BUT TAKE THE LEAST NUMBER OF STEPS POSSIBLE TO OBTAIN THE CAPACITY OF LOAD
FLOOR LINE
5TH & 6TH LAYERS MUST BE ONE THCKNESS OF BRICK BACK OF 3RD & 4TH LAYERS.
3RD & 4TH LAYERS MUST BE ONE THICKNESS OF BRICK BACK OF DOOR POST.
1ST & 2ND LAYERS MUST BE EVEN WITH INSIDE EDGE OF DOOR POST
DOOR POST
SIX BRICK MAXIMUM HEIGHT IN DOOR WAY
6TH.
5TH.
4TH
3RD.
2ND.
1ST.
SECTION A-B.

Manner of Loading Brick in Car, as Prescribed by the Master Car Builders' Association, in Fig. 68-B, Rule 124-A, M. C. B. A. Loading Rules

refusal by railway companies to settle damage claims on the technical charge that cars had not been loaded in accordance with Fig. 68-B, Rule 124-A, M. C. B. A. Loading Rules.

"As the adoption of this loading plan by the M. C. B. A. will legalize a practical method of car loading, doing away with the expense of bracing or boarding at the doors (which several roads have been insisting upon), we trust and believe the Association will highly approve the work of the members of the Special Committee, to whom we should all feel grateful."

In the July 6 issue of "Brick and Clay Record" the statement was made that the American Face Brick Association was doing work in its field that was effective and which made for progress, although little mention of some of the features found its way into the public prints. Here then is an instance of the work that was meant and which is of benefit to the whole brickmaking fraternity.

Official Report on American Clay Substitutes

STATEMENTS HAVING BEEN PUBLISHED by importers to the effect that certain foreign clays were essential in the manufacture of certain goods in this country, American producers of clays brought the matter before the Department of Commerce of the United States, alleging that investigation would show that the foreign materials are not essential in the manufacture of the lines in which they have hitherto predominated.

The subject was referred to the clay products section of the Bureau of Standards, and the following statement has been prepared by Prof. A. V. Bleininger, who is the ceramic chemist in charge of this section, and published in "Commerce Reports." It has important significance for American users of the materials described.

In the manufacture of glass pots, tank blocks, graphite crucibles, and similar refractories a certain amount of plastic clay is required for the purpose of bonding together the grains of calcined material, ground pot sherds, and previously burned fire clay, which constitute from fifty to sixty per cent of the mixture used.

The requirements of pot clays are very exacting and may be summarized as follows: First, sufficient refractoriness to withstand the high heat of the furnaces, under the pressure of the liquid charge, without showing deformation; second, great plasticity and bonding power, making possible the cementing together of the grains of calcined material to a compact mass; third, possession of considerable mechanical strength, especially in the dried state; fourth, the quality of becoming dense at comparatively low temperatures in order to produce a structure impervious to the liquid glass or metal and resisting their corroding influence; fifth, the property of retaining a sound structure, free from vesicular development, upon long continued heating; sixth, the quality of drying and firing safely without cracking or checking.

These requirements are very severe and are possessed by comparatively few clays. The materials which have been found most satisfactory by years of practical experience are a number of European clays, principally those from Gross Almerode, Klingenberg, Schippach, and the Westerwald district in Germany, and from Belforce and the Ardennes region in Belgium. These clays possess the properties demanded of glass refractories to a remarkable degree. Still it has been found possible for a number of years to use in many places a mixture composed of a larger quantity of American plastic clay from Missouri (St. Louis) and a smaller quantity of the imported clay with satisfactory results.

During the first six months of the war the supply of European glass-pot clays was fairly regular, but shipping conditions have become very much more difficult at the present time, and as a result the demand for these materials can not be satisfied. This condition is an embarrassing one for the glass and the crucible industries, and the question of replacing the foreign clays by American materials must receive immediate attention. A review of the situation tells us that the case is not as hopeless as it has been represented to be by some, and the cessation of the clay imports certainly can not be said to have a disastrous effect on the industries involved. The use of domestic clays already known will enable manufacturers to continue operations, although it is quite possible that until the best possible mixtures of clays can be worked out, the production cost will be increased, due to the shorter life of the glass pots and crucibles. In the end the necessity of using domestic clays, which are cheaper and more easily obtained, would be a distinct benefit to the industries.

Recent tests of American plastic fire clays have shown that some of these approach the imported clays in quality, but are still lacking in one or another respect. No single American clay so far examined has been found to be a perfect substitute for the gross almerode and related clays, even though it may be superior in some of its properties. It is, however, not improbable that such a material may be found sooner or later. This condition need not be at all discouraging, since the problem can be solved by the use of a mixture of several American clays, each of which contributes its share toward the development of a suitable structure. The deficiencies of any one clay may thus be compensated for by the others.

This practice has been followed by the German pot makers with good success, and in some compositions as many as six clays are being used. A further advantage gained in this way is the fact that natural variations in composition and properties which occur in practically all clay deposits do not become so important as when only one material is used, for it is improbable that all clays should change in the same direction at the same time.

Owing to the fact that American manufacturers have already acquired an extensive experience in the use of the Missouri plastic fire clays which have been found to be valuable glass-pot materials it should not be a difficult task to supplement them with certain other clays which are available. It can not be expected that pots and crucibles of the highest quality can at once be manufactured. The experience being gained must be paid for during the period of development by the possible shorter life of the pots and unavoidable accidental defects which are apt to occur until the best possible proportions have been established. This is a temporary condition which can hardly be avoided. It is important at the same time that close cooperation between the glass manufacturers and the makers of pots be maintained and that systematic research be supported akin to the practice prevailing in the German industries. The prejudice to experimental work now existing in the industries under discussion should be overcome.

With reference to the sources of plastic fire clay in the United States, there are available, besides the Missouri clays, very strong and refractory ball clays in Tennessee and Kentucky, more siliceous but exceedingly plastic materials in Arkansas, excellent soft fire clays in Pennsylvania and southern Ohio, several ball clay-like deposits in southern Illinois, and the various plastic refractory materials of New Jersey. These clays represent a considerable range of properties, and when suitably combined, should give results closely approaching those obtained by the use of the European clays.

There might be added that artificial improvement in such physical properties as plasticity, bonding power, shrinkage, strength in the dry state, etc., is not at all impossible through the use of small quantities of reagents like tannic acid and other organic substances, as well as inorganic salts, procedures which have been pointed out in recent experimental work.

In concluding this discussion the situation might be summarized by stating that the lack of imported pot and crucible clays can by no means be called an industrial disaster and their replacement would offer no grave difficulties. We are suffering from the lack of incentive that has followed the custom of denying support to prospectors so long as the necessary materials could be imported.

Preliminary Report Shows Decrease in Brick Production

A report will be issued by the United States Geological Survey, probably within the next fortnight, which will show that the value of brick and tile produced in the United States, during the year 1914, was less, by $13,707,935 than the production of 1913. This is progressing backward at the rate of nearly ten per cent in one year.

The value of common-brick produced in 1914 shows a loss, as compared to 1913, of $6,365,233 or more than eleven per cent in one year. According to the preliminary figures, it was the worst year in the recorded history of the department, the records going back to 1903 inclusive. In addition to the drop in the quantity produced, there was a drop in price—the average falling from $6.20 per M. in 1913 to $6.12 per M. in 1914.

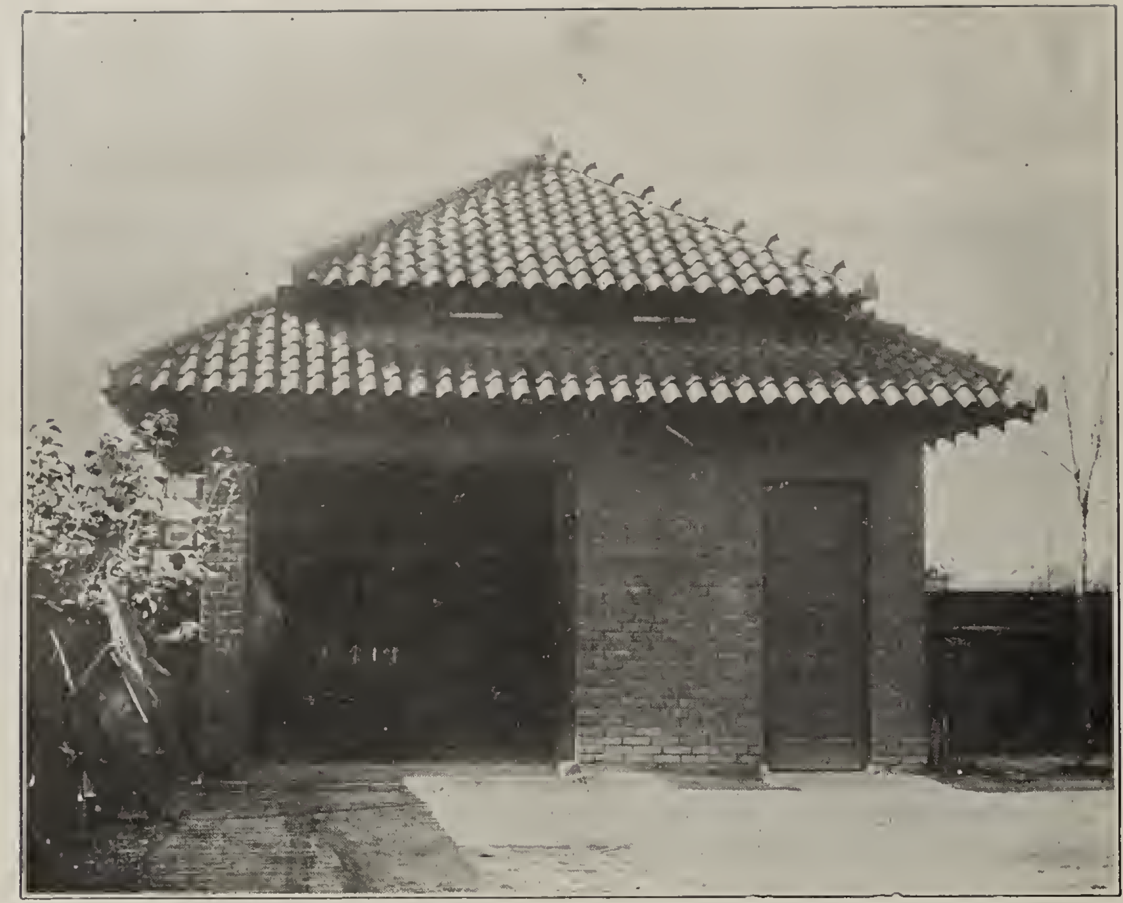
Face-brick production fell off in value to the extent of about $324,515, as against 1913. This is a loss of only three per cent, and shows that face-brick withstood the pressure of competition and hard times better than its less aristocratic brother-in-clay.

Paving-brick is the only important clay product that increased its output in 1914, the gain being $362,345 or a little less than three per cent better than 1913.

Fire-brick sustained a loss of $4,199,575. The value of the 1914 output was $16,427,547 while that of 1913 was $20,627,122. This is close to twenty per cent. The loss is due, it is said, to the almost complete stagnation of the iron and steel industries during the early months in the year.

Ohio Concern Installs Electric Equipment

The Toronto (Ohio) Fire Clay Company has recently completed the installation of electrical apparatus for hauling clay out of its mine. An electric motor now supplants the horses and mules which were formerly used and a new generator has been installed to provide the necessary current. The improvements have been under way for several months and mark the advance in manufacturing methods that was announced the early part of the year. The mine is considered one of the best and one of the most modern in eastern Ohio.



A Brick and Tile Garage That Was Built for $450 and Which Can Be Duplicated for a Smaller Amount in Many Parts of the Country

Building a Low Cost Brick Garage

Plans and Specifications of an Attractive yet Moderate Priced Auto House

By Charles Alma Byers

IN THE MAY FOURTH issue of this magazine appeared an article on brick built garages in which, among other types, was shown an automobile shelter of unusually attractive design, having an exterior of blue-red face-brick topped with a roof of red clay tile. This particular garage has attracted considerable attention, one reader suggesting that plans be furnished which could be worked into a booklet and distributed among prospective garage builders showing them how an attractive, fireproof and practical structure could be built of brick at a comparatively low cost, securing at the same time a very substantial construction. And so the accompanying floor plan and elevations, together with a description of this garage and the specifications for its construction, follow:

The walls of the garage are built of two thicknesses of brick—the inside being surfaced with hard-burned common red brick and the outside with selected blue-red brick. The foundation, six inches in depth and seventeen inches in width, is of concrete, the floor and driveway also being constructed of the same material, but surfaced with a half-inch coat of cement. The roof is covered with terra cotta "mission" tile, which is red, the necessary roofing framework being naturally of wood.

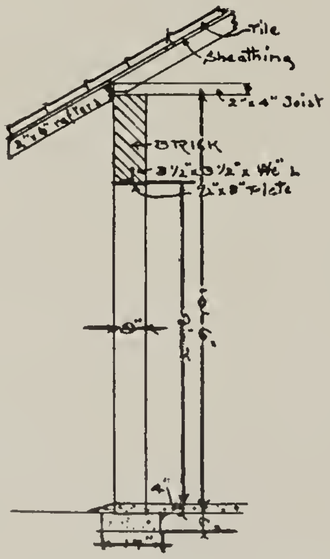
About 5,500 brick, of each kind, were required for the building, the estimated total cost of which was approximately $450 complete. It was built in Los Angeles, California, two or three years ago at close to this figure, and at the present time it could be duplicated in almost any part of the country at a price not far from the amount here named.

This garage is intended to house only one car, but there remains quite a little space which might be utilized for storage or other purposes. Besides the necessary driveway door, there is a small, ordinary door also on the front, which enables the owner to fasten the large double door on the inside and then exit by the small one. In each side wall is a small window, and on the front, a sort of dormer set in the front slope of the roof which helps to give additional light to the interior.

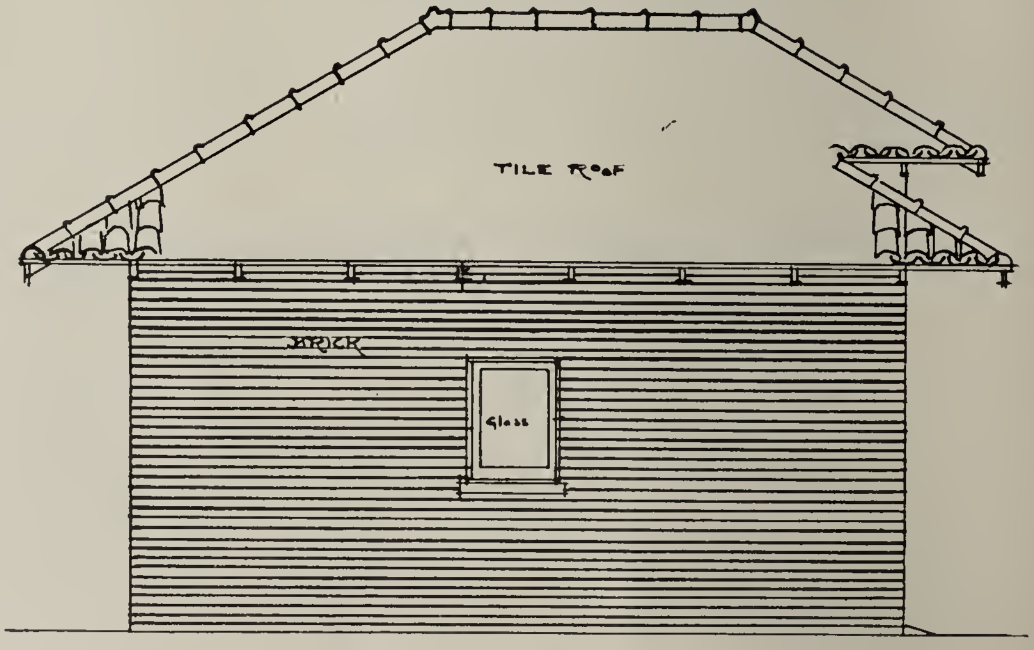
The architect's specifications for this building are as follows:

The foundation is to be of concrete, in the proportion of one part Portland cement to three parts sharp, clean sand and three parts gravel that will pass through a 1½ inch ring. The floor to be of the same proportion, except to have a top coat ½ inch thick of one part cement to three parts sand as above.

The walls are to be of hard-burned common red brick, except exposed faces, which will be of selected blue-red brick. The mortar for the brickwork is to be composed



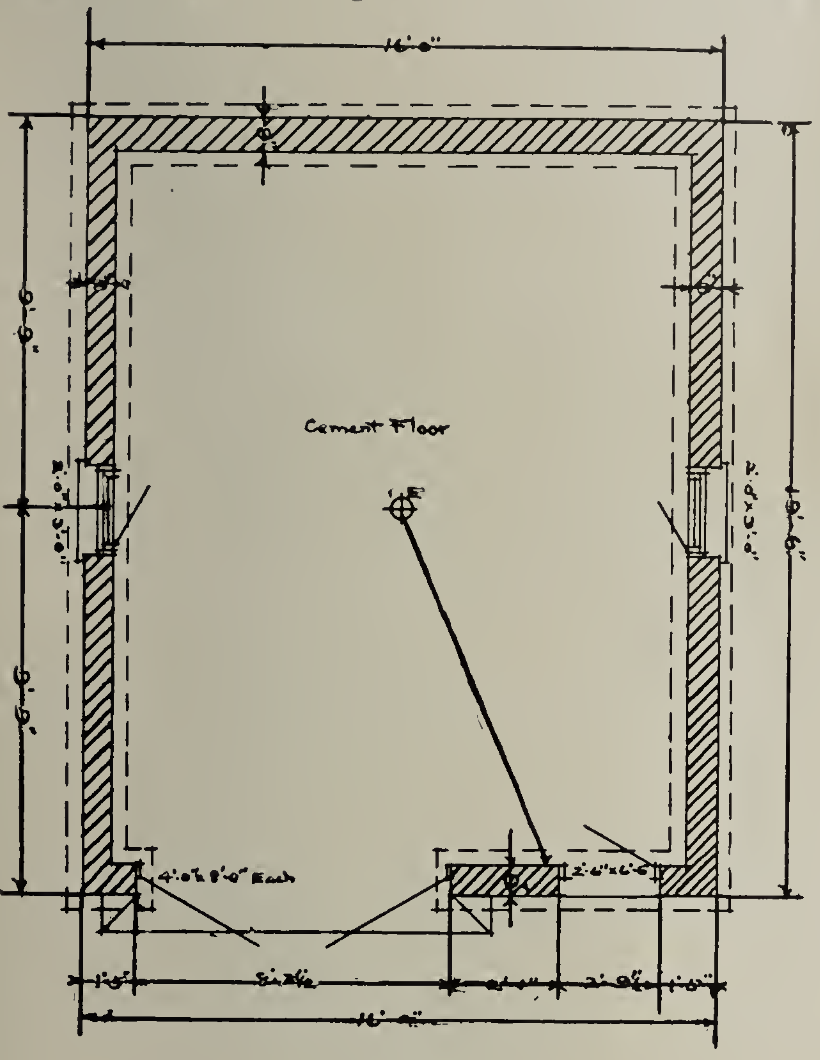
Cross-Section of Wall



Side Elevation

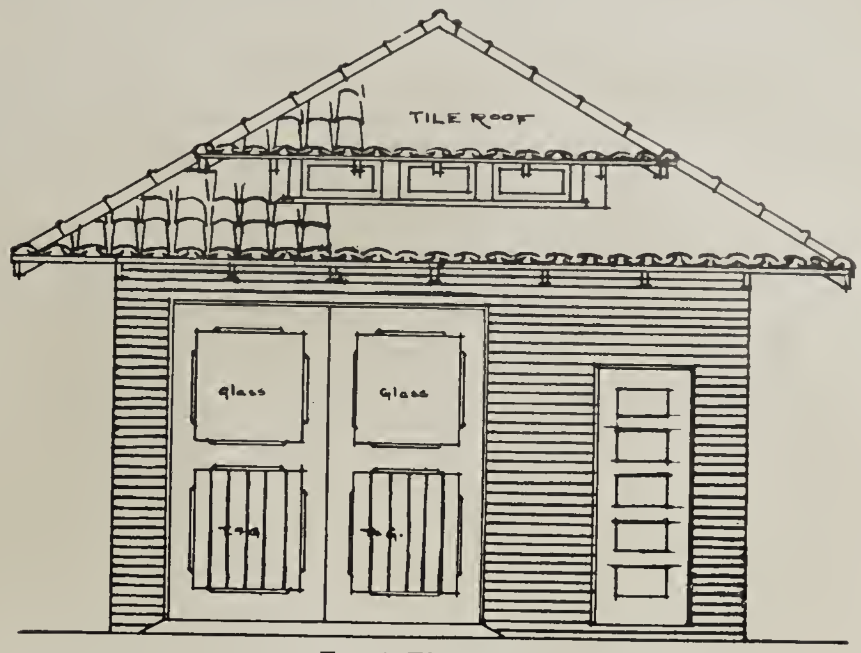
of one barrel of lime to one yard of sharp, clean sand, mixed seven days before using. The mortar for the face brick to be colored black with lampblack.

The lintels to openings are to be steel as shown, with a ½ inch x 8 inch plate and a 3½ inch x 3½ inch x 5/16 inch angle with standard connections, bedded at least 8 inches in cement grouting at the ends.



Floor Plan

The roof is to be No. 1 terra cotta "mission" tile, laid according to the manufacturer's directions. The rafters to be 2 inch x 6 inch, 20 inches on centers, and sheathed with 1 inch x 6 inch rough sheathing, laid close and nailed twice at each bearing. Provide 2 inch x 4 inch plate on top of the brick wall to receive the heel of the rafters, which will be notched over same. The ceiling joists to be 2 inch x 4 inch, 20 inches on centers. The ridge board to be 1 inch x 6 inch. The hip rafters to be 2 inch x 8 inch.



Front Elevation

The electric wiring is to be according to the latest rules of the National Board of Fire Underwriters, and a certificate of inspection furnished the owner from said board at the completion of the work.

The sash to be 1⅜ inch sugar pine, glazed with 21-ounce glass. The doors to be built as shown, with 1⅜ inch rabbeted stiles and rails, ⅞ inch x 6 inch V-jointed T&G panels, and glazed with 21-ounce glass, secured in place with wood stops.

All exterior woodwork to receive two good coats of linseed oil and white lead, in colors selected by the owner, besides the priming coat.

Protecting Crushing Rolls from Large Stones

With a pair of smooth rolls for crushing clay which contains pebbles, trouble is sometimes caused by stones which are too large to be crushed becoming pinched against the rolls and causing undue wear on them. Grooves in the rolls are often started in this way which rapidly grow deeper until the rolls have to be ground down or discarded. Conical rolls, owing to their shape, cause all such stones, to finally work toward the large end of the roll where they are free to fall out of the machine. But even with this shape of roll trouble is encountered in the prompt removal of stones, which seem loath to depart until they have tarried long enough to leave their mark upon the rolls.

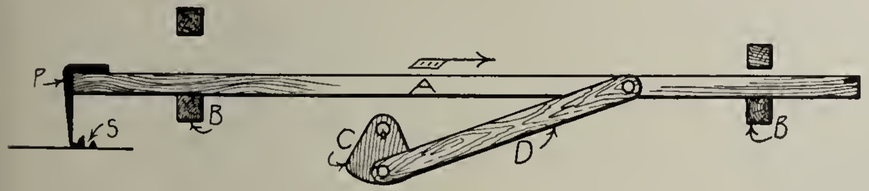


Fig. 1

The accompanying illustrations show a home-made contrivance for overcoming this difficulty which is in operation in a Canadian drain tile plant.

In Fig. 1 the rod "A" carries an iron point "P" on its end which removes the stones "S" from between the rolls. As the crank "C" turns in the direction indicated by the arrow, the connecting rod "D" pushes the rod "A" from left to right, causing the stone picker "P" to drag out any stones which may be between the rolls but too large to be crushed. On the return stroke the various parts of this device assume the position indicated in Fig. 2. Here it will be seen that the bar carrying the picker has been lifted up by the cam shaped crank and is being pulled from right to left, passing over the stones. At the end of the stroke the picker drops down close to the rolls and the operation shown in Fig. 1 is repeated.

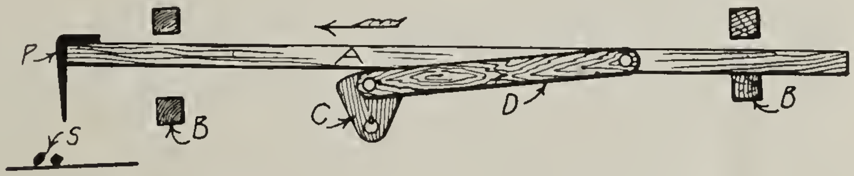


Fig. 2

The machine makes about ten strokes per minute and is driven from the nearest convenient shaft. The rod "A" is housed in suitable wooden guides to keep it in the proper position while passing between the rolls, and the wearing faces of the shaft are protected by being faced with band iron where the rod slides on the blocks "B." The crank "C" is slotted so that the stroke can be adjusted and the cam shape is formed by blocks of wood fastened onto the crank.

Blasting by Electricity

Recent Years Have Brought New Method of Detonating Charges, Promoting Safety and Efficiency

IN BLASTING operations of all kinds a few years back, no one deemed it necessary or advisable to explode the several charges of explosives at one and the same time. Then the charges were small and even if there were several to be detonated, it was the consensus of opinion that it was safer and more economical to explode each charge separately. To do this, fuse and blasting caps were used. After the charge of explosives was loaded in the bore hole, the fuse was lighted and then a nervous wait occurred before the blast was made, one never feeling sure just when the blast would go, and a constant peeping around the corners to note whether the fuse was still burning, if that were possible.

How differently blasts are made today. The charges of explosives in the bore holes are larger and there are more to detonate. Also it is known that when several charges are detonated at the same time, they assist each other, and consequently it is possible to use less explosives per bore hole. This detonating of several charges at one time is made possible by the use of electricity. This also makes blasting operations safer, because one knows exactly when the blast is to be made, and that it can be accomplished when everyone is in a safe place.

In blasting by electricity, there are three things necessary to secure. These are a blasting machine or a power circuit, leading wire and electric blasting caps. Some may add a fourth, but if they refer to connecting wire, this is not necessary if electric blasting cap wires of sufficient length are used to extend from one bore hole to the next. By eliminating the connecting wire, considerable time and labor are eliminated because the number of wire connections can be reduced by nearly fifty per cent. By reducing the number of connections, one also reduces very materially the chances of a misfire due to improper wire connections.

In addition to the necessary articles, it is very advisable to have a galvanometer and a rheostat, in order to make tests which will show that everything about the blast is in perfect condition. The galvanometer indicates whether the blasting circuit is open or closed, and if open, it is a very easy matter to locate the trouble and correct it before an attempt is made to make the blast. The rheostat is used to test the blasting machine to see whether it is in proper condition to detonate the electric blasting caps in the blast. It also has a secondary function, that of indicating to the blaster whether or not he is operating the blasting machine properly.

Blasting machines were the first electrical power used to detonate electric blasting caps because they were light and portable. They are so designed as to generate their own electricity, sending same out through the blasting circuit at the completion of the operation of the rack bar. They are manufactured of different capacities, ranging from four to one hundred fifty electric blasting caps when connected in series, in which manner electric blasting caps should always be connected when using a blasting machine. While blasting machines will stand a certain amount of abuse and still give satisfactory service, yet it is very advisable that they be given good care and attention to obtain better service. A drop of machine oil should be placed occasionally on the bearings of the armature, especial care being taken to keep oil off the commutator. The rack bar should be oiled sparingly at times. When the commutator becomes corroded or dirty it should be rotated gently against a small piece of fine sandpaper, which cleans the surface and causes the commutator and brushes to make a better contact with one another. In operating the blasting machine, place it on a firm and level foundation, so that the blaster will not tip it over at the end of the stroke, which slows up the operation of the rack bar and prevents the full amount of current being generated. Blasting machines should be stored in a cool, dry place and kept upright.

Another method of detonating electric blasting caps possessing distinct advantages over the blasting machine where a large number—100 or more—are to be detonated in one blast, is the use of power or lighting circuits, either direct current or alternating current. When alternating current is used, it is not advisable to use one of less than twenty cycles. A blasting machine is essentially a one-man-power machine, but firing more than 100 electric blasting caps is more than a one-man-power job. Electric power or lighting circuits, when available, can be made to fire many times 100 electric blasting caps at one shot by wiring the shots into what are known as parallel series or in parallel. Each series of electric blasting caps with copper wires, no matter how many there are in the series —from 1 to 100 or more—require about 1½ amperes of current to heat the bridge wires so that they will fire together. If two series are connected in parallel, it will require 1½ amperes for each series, or 3 amperes in all. If there are three series connected in parallel, they will require 1½ amperes for each series, or 4½ amperes. For each electric blasting cap in a series about 1 volt is required to overcome the resistance of the bridge wires and, in addition, more voltage is required to overcome the resistance of the electric blasting cap wires. A 20 foot electric blasting cap will require 1½ volts; a 36 foot electric blasting cap will require 2 volts; a 50 foot electric blasting cap will require 2½ volts, and so on. To determine the voltage necessary to fire a series of electric blasting caps, we must multiply the voltage required for each one by the number in that series. Thus, if we desire to fire fifty 36 foot electric blasting caps in series, we must have a current of twice 50, or 100 volts and 1½ amperes.

If we desire to fire these 50 electric blasting caps in two parallel series of 25 electric blasting caps each, we will require only half the voltage that one series of 25 such detonators would require, or 25 volts, but in splitting the current into two paths or channels we must double the amount of amperes, so that we require 3 amperes on the leading wires in order to have the required 1½ amperes for each series.

If we fired one hundred 36 foot electric blasting caps in parallel, the resistance would be very low and only a very small voltage would be required—less than one, but the number of amperes would have to be increased to 100 times 1½, or 150, which is much more than the average lighting circuit or power line is designed to carry. Therefore, in actual work it is bad practice to split the circuits into more parts than that which will give 1½ amperes for each circuit. For example, if the current is 15 amperes, the blasting circuit may be split or divided into 10 series; each series will then receive its required 1½ amperes.

Pottery Production for 1914 Decreases

Although the production of pottery in the United States during 1914 was below that for the preceding year, according to statistics gathered by the Geological Survey, the figures for 1914, were, with the exception of 1913 and 1912, the largest yet recorded, and as against only a few years ago, the industry in 1914 looms big.

The value of this commodity produced during 1914 was $35,398,161, which, when compared with 1913, shows a decrease of $2,594,214. Compared with 1909, the values for 1914 are $4,348,720 greater, and are $10,239,891 greater than those of 1904, and nearly twice as great as those of 1899. A detailed report on the pottery industry by Jefferson Middleton, of the Geological Survey, of which this statement is a summary, is now being printed. The decrease in the value of the pottery products in 1914 occurred chiefly in the last half of the year, business having been exceptionally active until summer, but the usual fall revival was not so vigorous as that of the early months of the year.

In 1914 only one variety of pottery—red earthenware—increased in value, showing a total of $1,059,904, the increase being $59,375 over 1913. Porcelain electrical supplies, valued at $4,130,270 in 1914, showed the largest decrease—$1,607,471—and china, which was valued at $2,384,686, showed the smallest decrease—$39,374.

The value of white ware, including china, was $17,352,765 in 1914, compared with $17,490,871 in 1913. If the value of sanitary ware and porcelain electrical supplies be added, the total for 1914 was $29,357,304.

Ohio is the leading pottery-producing state of the Union, reporting in 1914 wares valued at $15,351,376, or 43.37 per cent of the total. Ohio's principal pottery product is white ware, valued at $10,227,806, which constituted about two-thirds of the value of Ohio's entire pottery output in 1914. New Jersey is the second largest pottery-producing state. In 1914 New Jersey produced wares valued at $8,131,356, or about twenty-three per cent of the total. New Jersey's principal pottery product is sanitary ware, valued in 1914 at $5,058,204, or over sixty per cent of the state's total. West Virginia is the third in rank among the pottery-producing states, and is the only one of the leading five states to show an increase in the value of pottery. Its pottery wares were valued in that year at $3,930,464, or 11.1 per cent of the total, an increase of $505,577 over 1913. West Virginia's principal pottery product is white ware, valued at $2,577,766 in 1914, or over sixty-five per cent of the state's total.

The pottery imported into the United States in 1914 was valued at $8,349,442; this added to the domestic production made a total of $43,747,603. After deducting exports, domestic $526,902, and foreign $50,079, the apparent net consumption was valued at $43,170,622, of which the domestic production was eighty-two per cent, the highest proportion yet reached.

The imports of pottery decreased $1,828,009 in 1914 from those of 1913. The value of pottery imports in 1914 was the lowest since 1899 and was $5,236,170 less than that of 1907, the year of maximum imports. The decrease in 1914 occurred entirely in the latter half of the year, the first half having shown an increase over the corresponding period of 1913.

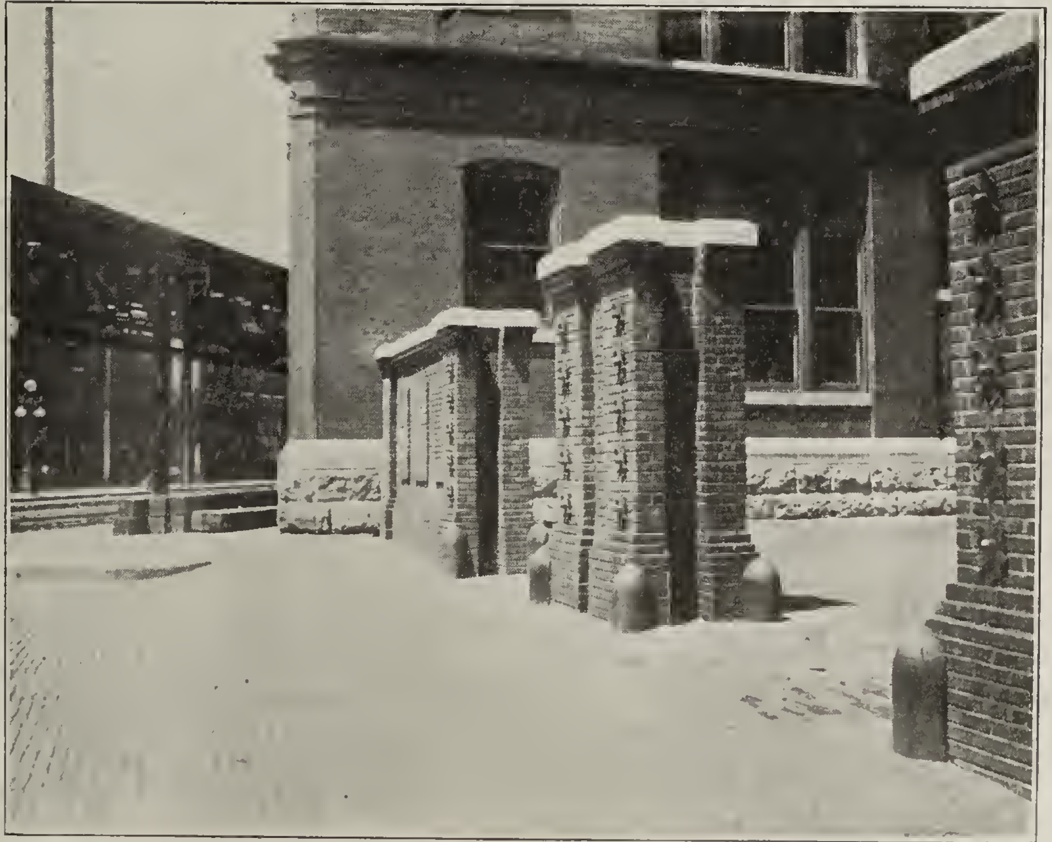
A Brick-Built Flood Gate in Kansas City

Standing like guards against the approach of the enemy, the built-with-brick gateway shown in the accompanying illustration may be seen before the wholesale market of Armour and Company in Kansas City, Mo.

The "enemy" in this particular instance is the floods which made a very damaging attack upon this fair city in 1903, the water in this particular spot rising to a height of about four feet—that was before the gateway here shown had been erected. Not desiring to be a further victim of a similar Dayton-like visitation which might come at any time, Armour and Company built a protection consisting of brick walls and a large gate-post. The vertical slots or grooves in the post and ends of the walls have been provided for the reception of heavy timbers which are placed on top of each other until the full height of the walls is reached. These timber gates are then calked on the inside to prevent the water leaking through them.

Late in June when the rivers on both sides of the city—the Missouri and the Kansas—threatened to flow over the dikes and inundate the city, these timbers, which have been in storage for some time, were hastily brought out and placed on the sidewalk as shown in the background of the accompanying picture.

Although the water reached a record height of four feet at this point in 1903, the walls and gateway have been built to a height of seven feet which is thought to be several feet more than ever will be needed.



Midsummer Ceramic Meeting

Program and Itinerary Selected Will Make Gathering Unusually Interesting and Instructive

ANNOUNCEMENT IS MADE of the seventeenth summer meeting of the American Ceramic Society, which has been arranged by the committee appointed for that purpose at the last annual meeting.

The meeting will be held August 25, 26 and 27 inclusive, and will begin at New Castle, Pa., on the date first named. It will conclude on the evening of the third day, at Rochester, Pa., visits having been made to Bessemer, Crescentdale and Beaver Falls. The circular making the announcement reads:

RICHARD R. HICE, E.M.,
President American Ceramic Society

The localities comprised in this tour all lie close together in Western Pennsylvania, a region of great natural beauty, historic interest, and industrial activity. The list of visits arranged and those available to individuals after the disbandment of the party make this program one of unusual attractiveness. The program by days follows:

WEDNESDAY, AUGUST 25, 1915

The members will gather at the Lawrence Club at 9 a. m. At 9:30, promptly, they will leave for the works of the Universal Sanitary Manufacturing Company. Those arriving over the P. & L. E. Ry. by the morning train should get off at New Castle Junction, and proceed at once to the plant, which is distant only five minutes' walk to the south from the Junction.

The Universal Sanitary Manufacturing Company has two features of great novelty and interest to show, in addition to a well organized and well appointed factory. The first is the manufacture of large compound pieces of clay ware by the fluid-casting process. The second is the New Dressler Continuous Tunnel Kiln, now under construction and rapidly nearing completion. This is the first installation of this kiln in America. The claims made for it, on the basis of its performance in England, are extraordinary and no one interested in burning clay wares can afford to remain uninformed about it.

Luncheon will be served at the Universal plant and the party will return to New Castle by train at 2:35 p. m.

At 3 p. m. the members will visit the plant of the Shenango China Company, manufacturing table porcelains. If any of the members prefer to visit the plant of the Lehigh Portland Cement Company they will be welcomed there. Both plants are accessible for visit in the time available.

At 7 p. m. dinner will be served at the New Castle Country Club. Music and entertainment will be arranged by the local committee.

THURSDAY, AUGUST 26, 1915

9:30 A. M.—The party will leave by special train over the private branch of the Bessemer Limestone Company to visit their works at Bessemer, Pa. This company conducts two interlocking mineral industries, 1st, the quarrying, crushing and grinding of limestone on a large scale, and 2nd, the manufacture of paving brick from shale and clay stripping which covers the stone. The brick works is one of the largest in the country, and the Haigh continuous kiln used in burning the product is without question the largest in the world.

Noon—Lunch at Bessemer.

1 P. M.—Leave for Crescentdale to view the plant of the Crescent Portland Cement Company. This plant is interesting in the fact that it obtains its own coal, limestone and clay on its own property. It mines its coal as usual and in addition mines its limestone in underground quarries, a practice quite unusual. The works are modern in every respect.

5 P. M.—Leave Crescentdale for Beaver Falls.

7 P. M.—Dinner at Country Club with Beaver Ceramic Society. Following the dinner the formal disbandment of the Beaver Ceramic Society and the organization as the Beaver Section of the American Ceramic Society will take place. This is the first local section to be formed under the recent amendments to the Constitution. Professor Orton will make the address of welcome to the new section.

FRIDAY, AUGUST 27, 1915

9 A. M.—Leave by street car for works of the Armstrong Cork Company. This company is producing a novel type of brick for heat insulation purposes. It is composed of clay, infusorial earth and ground cork. The latter serves not only to create the desired porosity in the product but by its combustion furnishes the entire heat in the kiln.

It fact, holding back and regulating the heat is one of the principal problems they encounter in making this product.

11:30 A. M.—Lunch.

1 P. M.—Visit to the Brighton Chemical Company, manufacturers of borax and boric acid, in New Brighton.

2:30 P. M.—Visit to the Beaver Valley Pot Company at Rochester, Pa., manufacturers of glass pots, flattening plates and glassmakers' refractories.

3:30 P. M.—Visit to the H. C. Fry Glass Company, at Rochester, Pa. This plant manufactures specialties in blown table and bar glassware of high quality.

5 P. M.—Disbandment.

For those who come from a distance, and who desire to use Saturday also in sight-seeing, there are numerous opportunities. East Liverpool is distant only 30 minutes' ride, and Pittsburgh one hour. There are many other ceramic plants in Beaver Falls, which were visited on our previous summer meeting at Beaver Falls and are not included this time solely to avoid repetition. All of these plants stand ready to welcome any A. C. S. visitors who desire to call. In Pittsburgh, the U. S. Bureau of Standards, and the U. S. Bureau of Mines, are located, and should be seen by all who are not familiar with their work.

HOTEL ACCOMMODATIONS

One night at New Castle and either one or two at Beaver Falls must be provided for. The local committee will be pleased to arrange accommodations for all who desire, and their work will be made the more effective if a post card notice be sent, advising your intention. The convenience of those who attend, and those who are arranging for their comfort and pleasure, both require that this simple card of announcement be used, and promptly.

RAILROAD RATES

No special rates have been secured or sought. At this season, many will be able to use stopover tickets on longer trips, and possibly some may be able to take advantage of local excursions. Each member must make his own arrangements in this respect.

EXPENSES

The cost of the trip, beginning at New Castle and ending at Rochester, will be slight; probably not over $7.00 each.

VISITORS

Permission has been asked and granted for a number of practical potters to visit the Universal Sanitary Manufacturing Company at the time of our visit. It is not improbable that some or all of these gentlemen may desire to go with us over the remainder of our itinerary and a cordial welcome has been promised them. The policy of this Society has always been most liberal, in giving welcome to all who are interested in any phase of ceramic work at our meetings.

THE COMMITTEE

The Committee is composed of the following gentlemen:

C. T. Kirk, New Castle, Chairman.
J. M. Smith, New Castle.
F. R. Kanengeiser, Bessemer.
F. W. Walker, Jr., Beaver Falls.

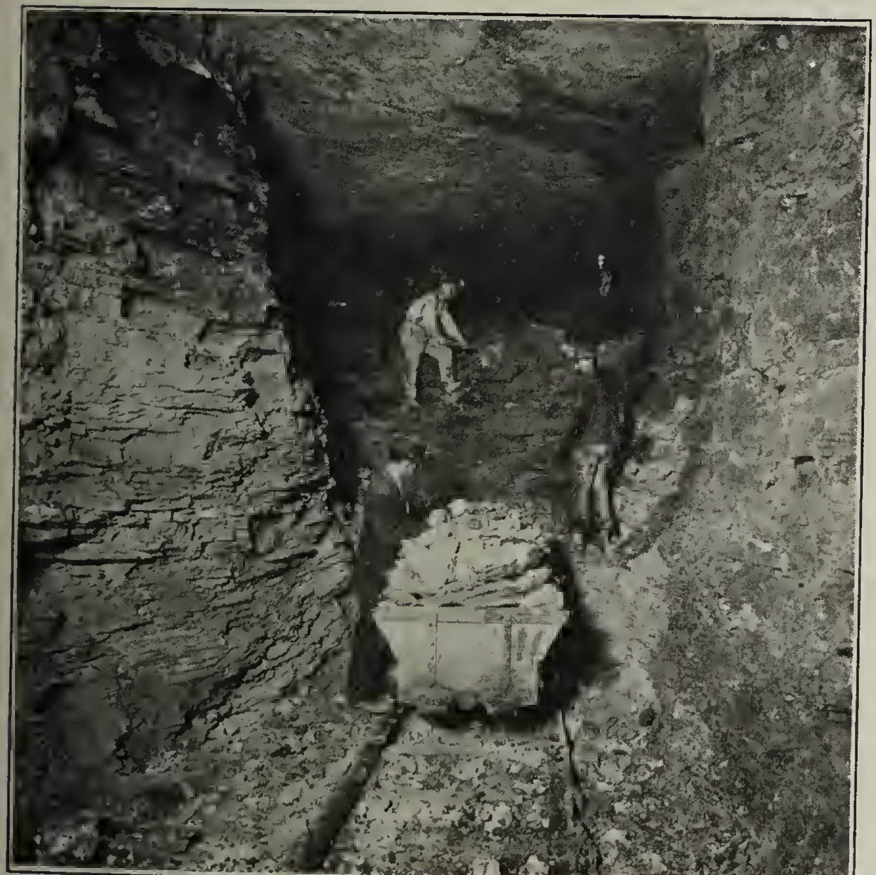
In addition, President Hice has been active in giving assistance. Address any of the Committee for special information, other than accommodations. Address the Chairman only, on the subject of accommodations.

CONCLUSION

The Board of Trustees thinks that the Committee has prepared an unusually interesting and instructive trip and that in addition to the regular features the Thursday night session and the formation of the first local section will prove of great interest and stimulus to all. They therefore express the hope that there will be a large attendance.

Where Fire-Clay is Mined Like Coal

Few people, except those who are engaged in the clay products industry, know that fire-clay, from which many of the best face-brick in the country are made, is mined, very much in the same manner as coal.



At the plant of the Brazil (Ind.) Clay Company, the clay comes from a depth of 110 ft. and the extent of the entries and openings of rooms would enable that concern to easily load up to 400 tons—twenty cars—every working day in the year. Neither frost nor flood, bad weather, heat nor cold, affects the quantity or quality of the clay output.

The clay is not of the same flinty nature as is used in the manufacture of fire-brick, although it is rightfully termed a fire-clay, and it is absolutely free from any chemical element that would tend to produce efflorescence, either in the course of manufacture, or afterward, when the brick are built into the wall.

The point at which the photograph, from which the accompanying illustration was made, was taken in a place where the vein had attained a height of eighteen feet. It is overlaid with coal that runs from fourteen to eighteen inches in thickness, and this coal is unusually free from sulphur.

The extent of the clay deposit, and the thickness of the vein, gives an unusual uniformity to the material into which it is made, and Brazil brick—or "Lizarb," as they are called—are noted for their close shading and uniform size. The burning records show that the kilns are producing more than ninety-five per cent first quality face-brick.

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

Building a Cement "Build with Brick" Sign

One of the most interesting letters that has reached this department in many weeks is one which comes from George E. Snowden of New Cumberland, W. Va., who writes under date of July 23rd as follows:

> Recently a friend, with that provoking "now-will-you-be-good" smile, called my attention to an article published in the "Saturday Evening Post" sometime during the early part of the present year. In that article the writer detailed, at great length, the difficulties incident to the construction of a small, cement-block residence and while confessedly an amateur architect, mechanic and builder, did not hesitate to assert that even a second rate cement block was better than either wood or brick. Not only did he put brick in bad company but he then threw mud at the pair. I do not question the sincerity of the author; amateurs are usually very positive, however brief their experience—but the whole story brought to mind the experiment of a friend of mine that would seem to cast some doubt upon the "Saturday Evening Post" writer—or at least upon his knowledge of building materials.
>
> The friend of whom I speak is a dealer in brick and he has an unbounded faith in the product that he handles; but before the decease of the late lamented (?) cement-block construction craze, he was continually pestered by prospective customers with queries relative to the comparative merits of brick and cement-block for residence building purposes.
>
> With undiminished reliance in brick—upholding and upheld by the faith of his fathers (brickmakers from away back) this man resolved to provide an object lesson that would answer the cement-block questions without wasting breath.
>
> He contracted with an expert cement worker to build for him a small house, specifying that it be constructed in a workmanlike manner and with the best materials obtainable—that is the best cement materials obtainable—confiding to me at the time that he was building a "Build with Brick" sign with these same cement blocks.
>
> Paradoxical though it seems, these cement blocks did make an excellent "Build with Brick" sign. After the regular march of the seasons had left its impress upon the house, those cement blocks furnished ample vindication of my friend's faith and they are continuing to perform this service day after day, week after week, and, it may now be said, year after year. A "Doubting Thomas" becomes insistent in his demand for brick, once he notes the discoloration that has appeared upon the exterior, and the dampness that is just as apparent upon the interior of this little house. My brick selling friend calls it his "Horrible Example" and says that the rivulets that trickle down the interior finish, sketching mural decorations that are neither artistic nor sanitary, enables him to sell brick without an effort. In point of fact, he says that his cement block "Build with Brick" sign is the best salesman in the country—for brick.

Mr. Snowden is not the only man interested in the brick business who took occasion to write this magazine, asking whether or not something could be written in answer to the article which appeared in the "Saturday Evening Post" and which was called the House that Junk Built. It may be that before long something of the kind will be done.

Only One of Many

In the course of a little more than two years, "Brick and Clay Record" has answered, through its "Questions and Answers" department, nearly seven hundred questions. This does not, by any manner or means, make up the sum total of questions asked and answered. For instance, in May of the present year, R. C. Hanford of Abingdon, Ill., wrote saying that he had experienced considerable trouble with his kiln doors in that as soon as the mortar with which the doors were daubed dried, it crumbled and rolled off, thus making an air-tight door impossible. He asked us to suggest a remedy and this was done. He writes us under date of July 29th as follows:

> We tried your "dope" on the kiln doors with much success and have been using the same method ever since with satisfaction. Thank you for your kindness in making the suggestion and also kindly pardon the apparent delay in advising you sooner of the results.

While "Brick and Clay Record" is grateful for the opportunity its readers give, by the questions they ask the "Questions and Answers" department and to generally act in an advisory capacity for the clay product industry, it must admit that the receipt of a letter like the one quoted above is very satisfactory. The only profit that this magazine receives from the investment of time and frequently money, made in the answering of questions that reach it, is the feeling that it is doing some real good. The only way that it can tell whether or not this good is being done is when someone like Mr. Hanford writes a letter saying so.

A New Wrinkle in Show Rooms

The Don Valley Brick Works of Toronto, Ont., has issued a very handsome calendar in six colors, the subject matter being one section of the show room in the Dominion Bank Building in that city. The color work is particularly good and there is no doubt but that the caption which is run under the picture on the calendar and which states that it is an "exact reproduction" is true in every detail. At any rate it shows a very well arranged and very effective show room and we were glad to receive the following letter, which came to us under date of July 28th:

> We are mailing you, under separate cover, a calendar, which is an exact reproduction of a section of our show room which we installed after visiting you last year. Enclosed with the calendar you will find the blue prints of the cabinet system which you kindly loaned us. We are

sorry to say that we were unable to use this very good idea as our rooms were too narrow but we still think that the cabinet is a splendid system of showing brick. We are very grateful to yourself and staff and to all of the brickmen that we called upon while in Chicago, for the many courtesies that were shown us while we were in your city. We will be very glad to have you call to see us any time that you are in Toronto.

The cabinet system to which the above letter alludes is one which provides for a showing of face-brick samples laid in mortar and in panels. Each of the panels is set in a revolving sheet steel case, the back of which is veneered with hard wood. The basic idea of this scheme is that the entire show room will present the appearance of paneled woodwork and that no brick will be shown excepting one kind at a time. "Brick and Clay Record" would be very glad to give further details of this system which, while it has never been patented, is original with one of our staff and has, if nothing else, the merit of newness.

One of the "Australian Ballot" Replies

While the response to the appeal made in these pages—the S. O. S. and C. Q. D. for help and advice in ballot form—has been generous and full of kindly thought, we have wondered why many of our friends held back their hands from doing us (and themselves) some good by filling in the blank spaces, and sending us the page. One reason why some are not doing it is shown in the following letter, which comes from B. Broadwell of the firm of B. Broadwell and Son, of Kingsville, Ontario. Mr. Broadwell writes, under date of July 31:

I have just read the appeal to your subscribers for their opinions as to the conduct of "Brick & Clay Record" contained on page 105 of the July 20 issue.

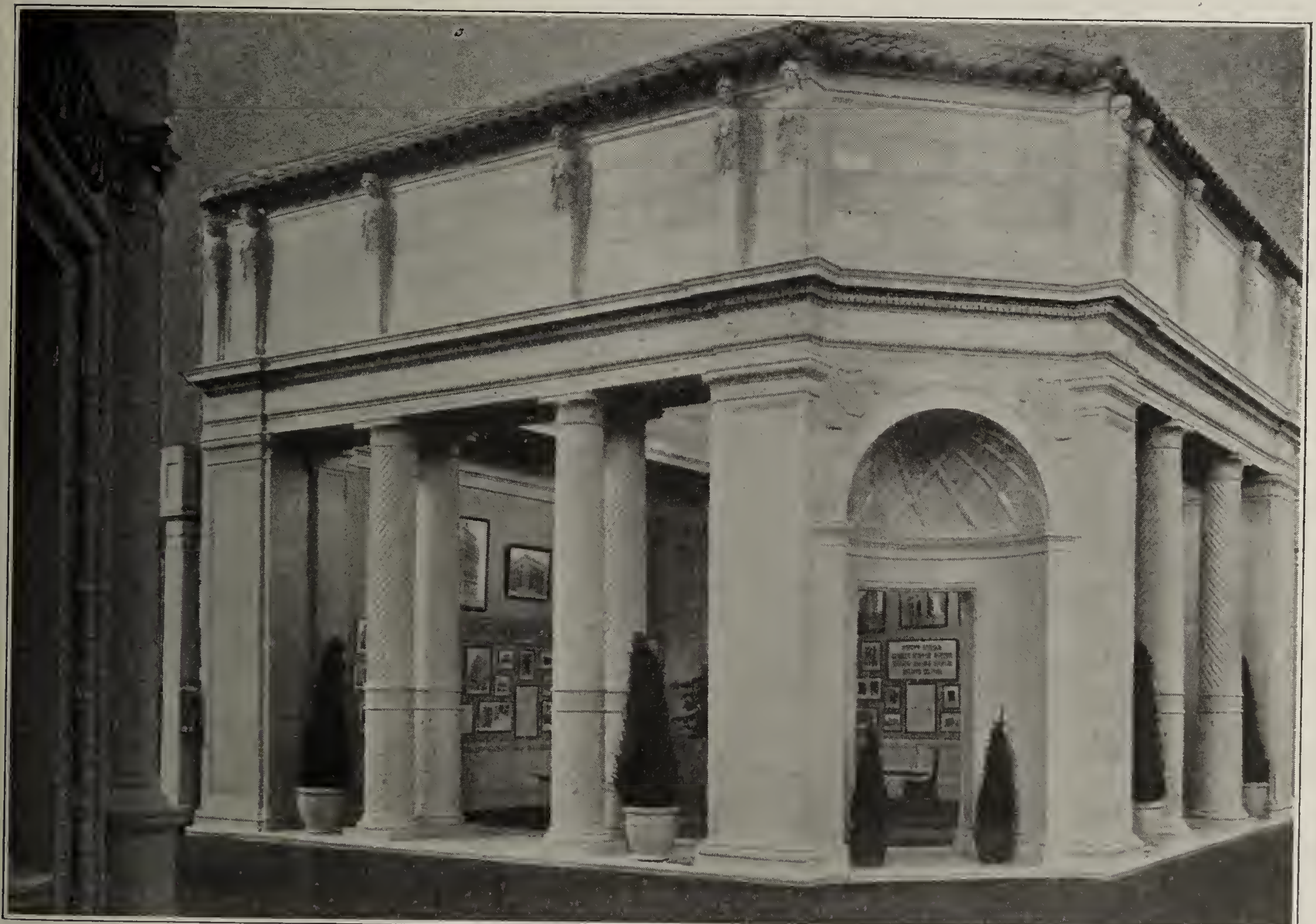
I do not care to tear out the page and mail to you with my comments, as requested, for the reason, I preserve my copies with the intention of having them bound. I will, however, give my opinion as to the value of "Brick & Clay Record" as a trade journal, by saying, it is the equal of any trade publication in America today, and I fail to see where I can make any worthy suggestion for its betterment.

If there is one feature that appeals to me more than another, it is those crisp, pithy paragraphs appearing under the heading "Editor's Corner," which are read by me with much interest. I have also gained much useful information affecting the operation of my plant from the "Superintendent" and "Letter Box" columns of your journal.

As a case in proof of the value of the articles dealing with plant equipment, etc., I will say that some time ago I secured a hollow-tile die 4 inch x 8 inch x 12 inch from a junk dealer, to whom it had been sold as "scrap" by a competitor in my territory, and with the information obtained from an article on die construction which appeared in "Brick & Clay Record" of April 20 I made changes in the bridges, etc., with the result that the die is now making 4 inch x 8 inch x 12 inch building block for me just as good as they can be made. Possibly had this article been contributed to your journal earlier, I might not have been able to secure this die.

In conclusion, I have found "Brick and Clay Record" of great assistance to me, and I look forward to its arrival with pleasure.

If any of our subscribers who are interested in hollow ware overlooked the article mentioned by Mr. Broadwell, it would be well to go back through the files and read it carefully. If the magazine has disappeared, we have a few extra copies on hand, that will be sent out, while they last, to subscribers who write requesting them.



The Exhibit of the National Terra Cotta Society at the Panama-Pacific International Exposition, Which Is a Very Worthy Representation of That Material. This Pavilion Is Built of Gray Matt Enameled Architectural Terra-Cotta While the Floor Is of Red Promenade Tile

The Superintendent

A Department Devoted to the Plant, Beginning
at the Pit or Mine and Ending With the
Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Horse Power of Shafting

The following figures are based on favorable conditions, line or countershafting being supported with bearings approximating 8'0" centers and head shafts supported according to standard practice.

Diameter of Shaft	Horsepower Transmitted by Elevator and Conveyor Head Shafts or Main Jack Shafts in Severe Torsion					Horsepower Transmitted by Line or Counter Shafts							
	Revolutions per Minute					Revolutions per Minute							
	1	10	20	30	40	1	50	75	100	150	200	250	300
1 11/16	.038	.384	.768	1.152	1.536	.053	2.6	3.9	5.3	7.9	10.6	13.2	15.9
1 15/16	.058	.582	1.164	1.746	2.328	.081	4.0	6.1	8.1	12.2	16.2	20.1	24.3
2 3/16	.083	.837	1.674	2.311	3.348	.116	5.8	8.7	11.6	17.4	23.2	29.0	34.8
2 7/16	.115	1.159	2.318	3.477	4.636	.161	8.0	12.1	16.1	24.2	32.2	40.2	48.3
2 11/16	.155	1.553	3.106	4.659	6.212	.219	10.9	16.4	21.9	32.9	43.8	54.7	65.7
2 15/16	.202	2.028	4.056	6.084	8.112	.282	14.1	21.1	28.2	42.3	56.4	70.5	84.6
3 3/16	.259	2.591	5.182	7.773	10.36	.360	18.0	27.0	36.0	54.0	72.0	90.0	108.0
3 7/16	.325	3.249	6.498	9.747	13.00	.451	22.5	33.8	45.1	67.6	90.2	113.0	135.3
3 11/16	.401	4.011	8.022	12.03	16.04	.557	27.8	41.7	55.7	83.5	111.4	139.5	167.1
3 15/16	.488	4.883	9.766	14.65	19.53	.678	33.9	51.0	67.8	102.0	135.6	169.2	203.4
4 7/16	.699	6.99	13.98	20.97	27.96	.970	43.5	71.7	97.0	145.5	194.0	242.5	291.0
4 15/16	.963	9.629	19.26	28.89	38.52	1.34	67.0	100.0	134.0	200.0	268.0	335.0	402.0
5 7/16	1.286	12.86	25.72	38.58	51.44	1.78	89.0	134.0	178.0	268.0	357.0	447.0	536.0
5 15/16	1.674	16.74	33.58	50.32	67.06	2.32	116.0	174.5	232.0	349.0	465.0	581.0	697.0

The above calculations of horse power are based on ordinary turned or cold drawn steel shafts, hammered or forged shafts. However, the horse power of shafting may be figured at a higher rating, if so desired, using the following formulae:

Service	Drawn or Turned Shafting*	Hammered or Forged
Headshafts	$\text{H. P.} = \frac{D^3 \times R}{125}$	$\text{H.P.} = \frac{D^3 \times R}{100}$
Line or Counter	$\text{H. P.} = \frac{D^3 \times R}{90}$	$\text{H.P.} = \frac{D^3 \times R}{75}$

D = Diameter of shaft.
R = Revolutions per minute.
* Powers listed in table.

Lining Journal Boxes

Some comment has been caused by the publication, in the July 20 issue of "Brick and Clay Record", of an article on babbitting journal boxes, a part of which read:

"It is not good practice to use the shaft for the purpose of casting the bearings, especially if the shaft is of steel. The hot metal is liable to cause a warp in the shaft. It is better to use a mandril of the same size as the shaft or a little larger."

With reference to this paragraph, N. G. Near writes that this is a point that has been argued to a considerable extent in machinery and power papers and that he has read all of these arguments and has participated in them, having had considerable experience with babbitt metal and bearings. He says that as a result of this experience and investigation he has concluded that there is very little danger of warping shafts and that he dislikes the mandril method.

He says that in pouring the babbitt on the shaft it should be poured quickly and in such a way that part of the hot metal will run down one side of the shaft and part down the other side. The shaft cannot well warp because it is heated equally from both sides and from the top and bottom. The whole mould should be filled as quickly as possible and if this is done, the shaft will not have time to warp. He further states that using a mandril of larger size than the shaft is not good practice if a good fit is wanted, because it is difficult to make a mandril of the exact shape of the shaft after the latter has become worn. Sometimes, and in fact usually, the shaft wears more in one place than in another.

He concludes by saying that even if the shaft does not wear appreciably, it is cumbersome and expensive to keep a lot of mandrils around, particularly as these mandrils will have to be of various sizes and can be used only for the purpose of rebabbitting.

It would appear that the mandril method is "good practice" in shop work but that in a clayworking plant where the shafting is bound to be worn, the position taken by Mr. Near is correct. A very good point is made, however, by Julius H. Bach of the Bach Brick Company of Chicago, who sends us the following suggestion, and wins a year's free subscription by so doing.

"Every man knows what it means to rebabbitt bearings of any kind in cold or even hot weather. If you want a good job at the first pouring, take some thin tough paper and wrap it around the shaft, pulling both ends together and making it perfectly smooth. The paper should be wrapped from one-half to one inch and the two ends should be pasted. You will be surprised how smooth, even and perfect the babbitt will be with but little scraping, but care should be taken that the paper is not too heavy because it will, if too thick, make the bearing large. The paper keeps the hot molten metal from direct contact with the cold shaft and allows the babbitt to flow evenly to every part of the box."

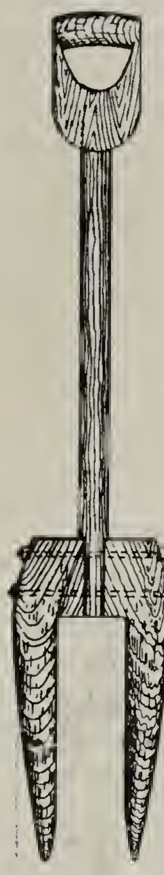
Kiln Foundations

The proper construction of any kiln should begin with the foundation. A kiln must be regarded in the same light as any other building enterprise—if the foundation be wrong the building is defective—dangerously so, because the defect is one that cannot be remedied after the kiln is finished, or at least cannot be remedied without a great deal of unnecessary expense.

Go down deep and "pave with brick." See that these brick are laid in cement and grouted with cement. This may cost more than using ordinary mortar but is a good investment, for it not only insures a dry bottom but leaves a solid foundation upon which to build the kiln.

Don't neglect to lay a cordon of drain tile around the kiln if you have any doubt as to the efficacy of the natural drainage. The kiln crown is very much like an enormous umbrella in its capacity for receiving rain and very much like an umbrella in the fact that after the rain has had a fairly good start, the water pours off the edges—again like an umbrella. The amount of this water, coming down as it does on comparatively small space around the entire kiln, creates a condition which requires artificial drainage unless, as before stated, the ground slopes away from the kiln in such a way as to insure the carrying away from (and not toward) the kiln, of this excessive water. As a general rule artificial drainage pays for itself.

Pitchfork For Handling Small Drain Tile



When three or four-inch drain tile are delivered to the kilns on wheelbarrows or trucks on which the tile are piled in a horizontal position, they may be very conveniently handled by the tosser with a wooden pitchfork, such as that shown in the accompanying illustration.

The two tines of the fork catch up two tile which are then tossed up to the setter. The tile slide off the fork but maintain their positions with regard to each other—side by side and close together—making it convenient for the setter to catch them. The hard wood tines are bolted onto a hickory handle, as shown in the sketch—an old spade handle is first-class for this purpose—the tines being about twelve inches long and three inches apart.

With this fork an inexperienced man can pitch tile higher and with less effort than an expert tosser could by hand.

Light Colored Salt Glaze

The color of the glaze is dependent upon two variables—the composition of the clay and the composition of the kiln gases during the operation of salting.

It is, of course, useless to attempt to secure a light colored glaze on a clay that has an iron content sufficient to make it burn red. A buff burning clay must be selected and then the salting must be carried on under oxidizing conditions as much as it is possible.

This means that the fires must be thin and clean and with the volatile gases burned out before the salt is placed in the fire-boxes, and (this is very important) the kiln must be at the correct temperature.

It is necessary that a very small amount of flash coal be added to or allowed to burn in the fire-boxes during the period that the damper is lowered, after the salting. This should produce a clear light glaze on any buff burning clay that will take the salt glaze at all.

Starting a Suggestion Box

Successful hotels, dry goods stores and clubs—successful enterprises of every character which deal with the public at large, maintain "Suggestion Boxes" in handy places. It has been said that the suggestions that were placed in a box of one large retail concern have given ideas to its management which netted many thousands of dollars, and improved its service in many directions.

The man who is willing to take the time to put his suggestion in writing has, as a rule, something worth suggesting. The man who makes it easy for his employes to write suggestions and put them in some place where they can be readily reached, is adding to the efficiency of the men around him and keeping a constant check upon himself.

While an anonymous letter is cowardly and unworthy of notice, an anonymous suggestion must be taken in another spirit. It comes frequently from a man who is too modest to sign his name but too much interested in the concern that employs him to allow it to go ahead without the benefit of the advice he feels he should give.

One thing should be borne in mind, however, and that is that men do not, as a rule, go out of their way to offer advice. If you want a harvest of suggestions and with it a crop of increased interest in your manufacturing proposition, it is necessary to sow some seed and it would not be a bad idea if a prize of some sort were offered in order to induce the men to use the suggestion box.

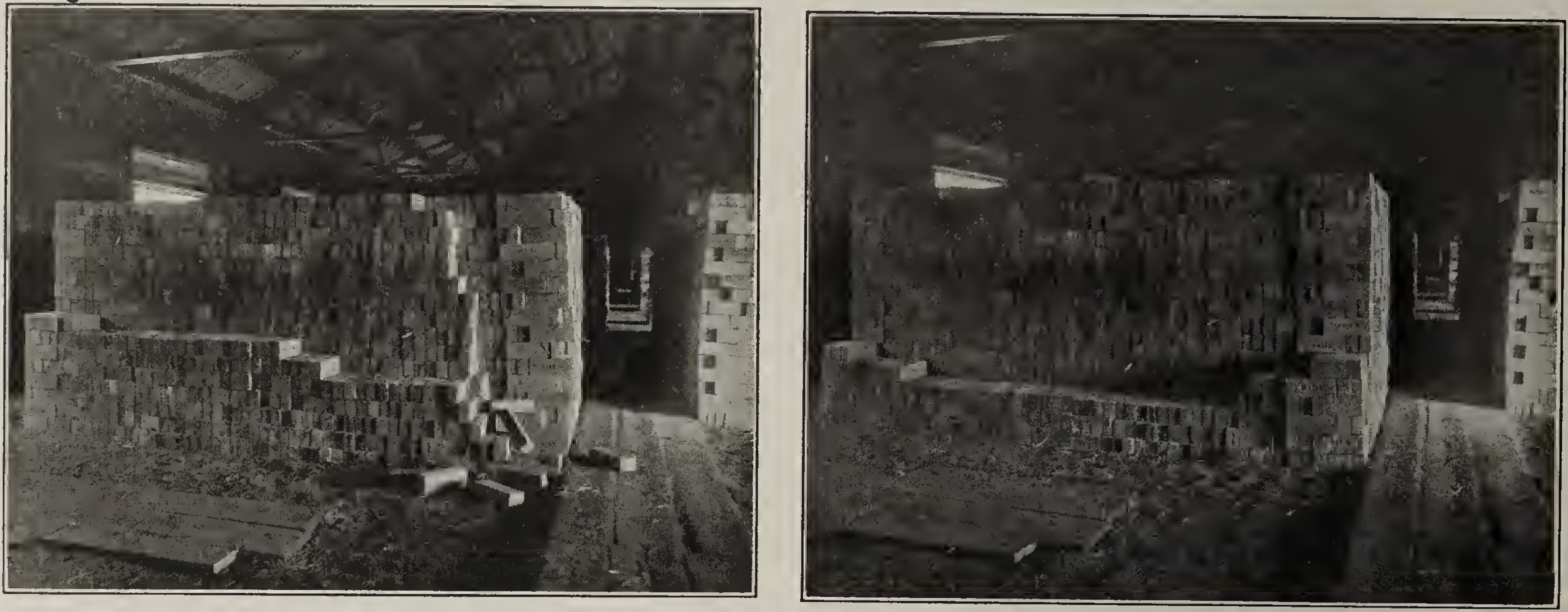
It is probable—almost certain—that you will find that the men who are willing to give suggestions are the ones who are readers of trade literature directly connected with your industry. It might be well for you to go around your plant and find out which of your men reads "Brick and Clay Record" and ask him whether he gets any good ideas from it or if he has any ideas of his own which he thinks would improve the plant. Ten to one he will tell you of some good thing that he has seen in this magazine and also have some good idea which probably would have escaped your attention were it not for the simple question you have asked.

The Wastefulness of Wet Clay

It has been said that no industry of any magnitude has as many wasteful methods as clayworking and one of these is, without doubt, the use of wet clay or shale. Every clayworker knows that wet clay "gums up" the machinery and places an overload on the power plant. It also has a way of causing a considerable curtailment in output. If the plant has no storage shed to hold a reserve supply of raw material or no drying apparatus for raw clay, it will be found profitable to take precautions at the pit and at every other point where the clay or shale is exposed to rain or drainage water.

The pit foreman should see that no holes or pockets are produced in the floor of the pit and that this floor should slope away from the bank. Even a few inches rise in ten feet will drain the water away from the cutting and this slope can be sliced off as the face recedes. A trench or furrow can be plowed parallel with the workings and about six feet back from the face on top of the bank; this will prevent the top drainage from pouring into the active pit.

Small and numerous trenches about four or six inches deep can be dug on the floor of the pit and these should participate in the slope previously mentioned so that they may not only drain but be drained.



RIGHT AND WRONG METHODS OF REMOVING BRICK FROM THE PILE

The Above Illustrations, Taken from the Illinois Steel Company's "Safety Bulletin," Show the Proper and Improper Methods of Removing Brick from a Pile. The Picture to the Left Shows the Wrong Way. The Cross-Tied Corner Has Been Removed, Leaving No Support for the Pile and Causing Danger of its Toppling Over. The Picture to the Right Shows the Correct Way of Removing the Brick. The Cross-Tied Corners of the Pile Are Left to Keep the Brick From Falling

Freight Tariffs and Troubles

WHILE NO DEFINITE ANNOUNCEMENT has been made, it is understood on very good authority that the Interstate Commerce Commission will adjourn for the summer not later than August 15. This is the latest that the commission has ever stayed "on the job" and this is said to be because of the western rate case matters coming up in connection with it. As usual the commission will formally reconvene about the first of October. The commission, however, is not closed in the strict sense of the word, the adjournment merely meaning that it will not hold hearings in Washington.

Changes in Freight Rates

Since our last issue, the following freight tariffs affecting clay products, have become effective:

FROM EASTERN POINTS

From Barrington, R. I., brick, to Greylock, Mass., $1.75 per net ton.

From Cooch, Del., clay, to Camden, N. J., 95c per net ton.

From Medfield Junction, Mass., brick, to Framingham, Mass., 55c per net ton; to Hartford, Conn., 95c per net ton; to Plymouth, Mass., 85c per net ton; to Quincy and Weymouth, Mass., 75c per net ton and to Roxbury, Mass., 65c per net ton.

FROM MIDDLE WEST POINTS

From Chicago and Peoria, Ill., brick (except bath and enameled) and articles taking the same rates, to Watertown, S. D., 16½c per cwt.; to Aberdeen, S. D., 17¾c per

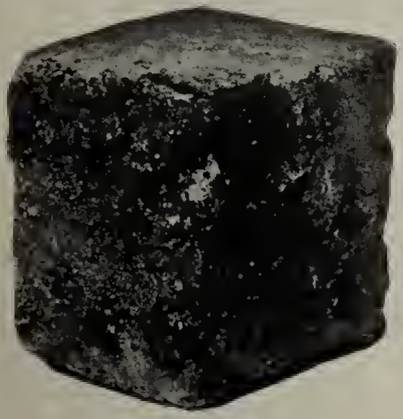
(*Continued on page* 214)

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

ONE OF THE MOST ANNOYING EXPENSES in a clay plant is the maintenance and repair of fire-brick walls and arches in kilns, flues and furnaces. This is largely due to the fact that fire clay, which has hitherto been the only available bond for setting up fire clay brick and shapes, is inefficient under high temperatures.

These fire clays do not lend proper support and bond to the fire brick. They crack and pull away from the brick; and pieces, corners and exposed faces of joint, spall, fall out and further expose the brick to high and low heats; the resulting expansion and contraction, causing disintegration of the wall and arches. The fire clay mortar melts and shrinks, leaving open joints.



J-M High Temperature Cement Mortar was Used in the Wall with this Brick. Note How Well Preserved the Edges Are

A good fire-brick construction consists of high grade brick, laid up with a minimum amount of cement mortar, that will not melt or fuse at the temperature encountered, that will not show excessive shrinkage on air setting and application of heat, and that has sufficient strength to withstand the movement of the bricks due to expansion and contraction. This defines fire-brick construction where J-M High Temperature Cements are used.

An analysis of this latter class of construction shows that after the heat is applied, the cement vitrifies and clings to the adjacent brick, without shrinking or cracking, thereby protecting the edges, preventing distortion of the wall, resulting from the expansive power of heat, and preventing arch brick from falling.

No. 31 J-M High Temperature Cement fuses at 3180 deg. F., and could be used to advantage as the mortar in laying the fire brick on all new kilns, either pottery or common clay kilns. It should be used to repair old construction, such as crowns, arches over doors, fire doors, furnace linings, bag walls and all under flues, including the laying of the feather walls.

Fire Clay Mortar was Used with these Brick. Note the Exposed Joints, and how the Edges have Worn Away

No. 32 J-M High Temperature Cement fuses at a temperature above 3200 deg. F., and is used to paint the entire interior of the kilns, and additionally protects the brick work.

These cements are made of asbestos and other refractory materials, and are especially valuable to potteries, as they offer a means of repairing saggers.

They are furnished in powder form, in one-hundred-pound bags, and when mixed with water, are ready for immediate use.

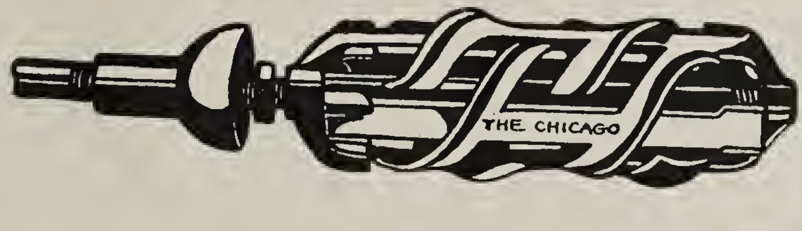
Full and complete information will be sent to anyone interested. H. W. Johns-Manville Company has offices in the leading cities of the country; simply address the one nearest you.

The Chicago Flue Cleaner

Every superintendent and engineer will be interested in a new machine designed to keep the fire tubes in the boilers scraped clean.

The usual steam blower and swabber are efficient up to a certain point, but they both fail to remove the hard, "burnt-on" crust of fine ash and oxidized iron.

The flue cleaner illustrated serves all purposes, in itself, or in conjunction with other types of cleaners that blow or crush the scale and accumulated dirt.



It has four sets of blades, and cuts as it twists, both going and coming. The metal entering into its manufacture is malleable iron, and therefore softer than the metal in the tubes. Thus the tube flues are not injured, yet they are cleaned positively, and the flue cleaner itself is kept sharp by natural wear while in use.

It will fit any size tubes, and is easily regulated for size. There are no springs to weaken or lose their temper due to heat, with a consequent loss of rigidity and cutting power.

It goes anywhere in the United States by parcel post. Full information on request from Seehausen, Wehrs & Company, 177 N. Franklin St., Chicago, Ill.

"Sirocco" at the Exposition

Big and small, round and balanced, the "Sirocco" blower is at the Pan-American Exposition and—blowing hard. In use in the specialized exhibits, and in the various departments, it completes the one, and serves the other.

In the Palace of Mining and Metallurgy the United States Bureau of Mines has installed what is known as the Model Mine. This mine embodies the latest ideas and the most modern equipment as approved by the greatest mining engineers of the day. By means of the "Sirocco" multiblade fan pressure is maintained in mines, fresh air is supplied and gases and smoke removed simply and efficiently. Many of the warships of the United States Navy, which assisted in the opening and participated in numerous naval maneuvers before the Golden Gate, are equipped with "Sirocco" forced draft systems manufactured by the American Blower Company.

In the Palace of Machinery the Robbins & Myers Company, of Springfield, Ohio, have their motors on exhibition in connection with which they are showing "Sirocco" Electric Forge Blowers whose strong and positive blast is most effective in building up a hot forge fire.

The million-dollar exposition auditorium, the scene of the great concerts, the forum where orators will speak and conventions meet, is furnished with pure fresh air by the "Sirocco" Ventilating System.

A "Sirocco" Blower contributed a very spectacular effect at the opening of the Ball of All Nations, held in the Palace of Machinery. It was the night of the great opening ball at the exposition. After executing a difficult drill the militia marched to the south end of the hall and stood at attention before the flower-wreathed flag-post. The spectators rose to their feet and cheered wildly as the Stars and Stripes rose slowly aloft and the band played the Star Spangled Banner. Concealed behind the flag was a "Sirocco" Blower. It lifted the folds of the flag, blowing it out straight, as in a whipping breeze, furnishing the final dramatic touch to the scene.

On clay plants "Sirocco" serves just as efficiently, whether installed in an American Blower waste heat dryer, or in ventilating plant and mine. As an induced or forced draft fan to provide draft for burning it long ago established its proficiency.

Full particulars from the American Blower Company, of Detroit, Mich., will be sent to you at your request.

Mechanical Grouting of Brick Pavements

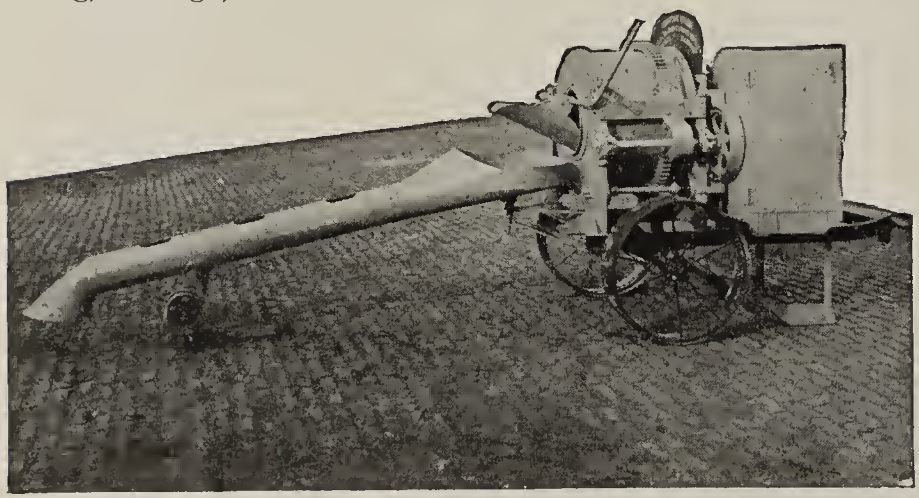
A chain is just as strong as its weakest link, and a brick pavement is just as strong as the grout.

It has long been a problem with the paving brick men to get the pavement, in which their brick are used, built strong.

Good brick that were tough, and that had stood a low rattler test, were injured in the street, after only a short service, because the grout wore away, exposing the edges to the hammering of iron shod hoofs and wheels.

Poor grouting was the cause: a grout that was poor in bond and rich in sand and water; a grout that was imperfectly spread and applied, grout not sufficiently and correctly mixed, was made and applied by hand labor.

To overcome this difficulty, a mechanical method of mixing and applying the grout to the joints, was brought out by the Marsh-Capron Mfg. Company, 462 Old Colony building, Chicago, Ill.



It does the work of mixing and applying thoroughly; and combined with good pavers, it helps to produce a pavement that is dependable.

For contractors its big appeal is its economy of operation. A complete description sent upon request.

Thwing Pyrometers at Exposition

The Thwing Instrument Company, Philadelphia, is exhibiting a multiple record pyrometer at the Panama-Pacific Exposition, and a radiation pyrometer. The exhibit is located with the exhibit of the Bureau of Standards.

Simplicity, Strength and Speed

W. P. Grath, inventor of the press bearing his name, states that it was his object to manufacture a press which would have the least number of wearing parts, with the least wear and tear in operation, and which could be regulated practically while the press was in operation. He wanted a press which would be strong enough not to break down in the ordinary running, and at the same time would be simple enough so that any ordinary engineer or machinist would thoroughly understand same after having had about four hours' experience with it. He also wanted a press with all the parts above the floor level, so that every part could be seen at any angle while in actual operation.

His experience in the manufacture of brick was of practical benefit to him in this work, and all users are loud in their praise regarding the simplicity, strength and speed displayed by the Grath presses, and also of the quality of brick made on them. The following excerpts from a letter written by Manager Hall, of the Range Sand-Lime Brick Company, Pengilly, Minn., are only samples of the reports from other users:

"We cannot speak too highly of the fine results we are getting from the Grath presses. Barring accidents and unnecessary delays from other parts of the plant, we turn out anywhere from 40,000 to 46,000 first-class sand-lime brick per day of ten hours with two 4-mold Grath presses."

Mr. Hall made the selection of these presses after investigating other makes, and feels that he has no reason to regret the decision as he does not know of any other presses for which he would wish to exchange these.

"Will state that you certainly will make no mistake in adopting Grath presses for making pressed brick out of sand lime or dry clay, as I have found them to be the simplest, strongest, and largest capacity presses built."

Still another achievement of the Grath Special is in making 34,000 brick per day, continuously on one plant from dry clay.

Full particulars from the Illinois Supply & Construction Company, W. P. Grath, president, Century building, St. Louis, Mo.

L. E. Rodgers Moves to Zanesville

The L. E. Rodgers Engineering Company, whose offices have been in Chicago for many years, has moved to Zanesville, Ohio, where ideal facilities have been obtained for the rapidly expanding business of this well-known company.

Mr. Rodgers has won fame as an engineer in connection with the designing and erection of many of the largest and most modern clayworking plants in the country. His "Uni-trol" dryer has also brought him into prominence; and the improved conditions under which the company is now located will enable it to serve the trade to even better advantage than heretofore.

E. V. Johnson, for several years vice-president and western manager of the National Fire Proofing Company, has severed that connection, and has established offices in Railway Exchange Building, Chicago, to act as designer and erector of structural clay products. Mr. Johnson was the pioneer in hollow clay block construction, and is perhaps best known as the patentee of the popular Natco XXX building tile. He has issued an unusual sort of booklet dealing with hollow-tile construction, copy of which he will be glad to send to any of our readers on request.

Salesmen You Should Know

The man with a gleam in his eye—sincerity in his handclasp—a sense of helpfulness in his heart—that's the Salesman of today. To all of us he is welcome. He sleeps with one eye on his grip and the other on a timetable, ready at the word of command to "go anywhere for business."

"Brick and Clay Record" is proud of the opportunity to give its readers a chance on this page to renew acquaintance, or to meet for the first time, leading salesmen in the clayworking industry.

J. C. STEELE is one of the pioneer brickmakers of North Carolina, and it was many years ago that he started in the brick machinery field. His need for machinery and appliances on his own plant, coupled with his inventive turn of mind, caused him to launch into machinery manufacture. Today the product of J. C. Steele & Sons, Statesville, N. C., is used in every clayworking state in this country, and much of it has found its way into foreign fields.

A. P. Steele is the First One of the Group. George H. Smith is in the Center, and F. F. Steele at the Right.

We show here likenesses of the two junior members of the firm. Both of them have had actual experience in brickmaking, as the firm still maintains a plant with a daily capacity of 20,000 brick. A. P. Steele is in charge of the mechanical and designing end of the machinery business, while F. F. Steele, the youngest member of the family, is in the sales department. Both of the young men travel to a considerable extent, however, and many of our readers consider themselves fortunate indeed to count A. P. and F. F. Steele among their friends.

Geo. M. Smith, whose portrait is also shown, is the western representative of J. C. Steele & Sons, with headquarters at Kansas City, Mo. He is a Buckeye State product, so his entry into the clay-machinery field was a natural one. Those who know him, and they number almost every clayworker in the Southwest, tell us he is one of the most interesting and magnetic men they have ever met.

He has been selling clayworking machinery for the past ten years. For about seven years he represented an Ohio company, with office in Kansas City, Mo. Afterward he took charge of the Eastern territory and had his office in New York City for about two years, where he made many friends in the trade.

About four months ago Mr. Smith established his present office at 203 Sheidley building, Kansas City, Mo., where the clay-products manufacturers always get the glad hand.

The Wellington Dryer Expert

They tell a story on D. J. Strickland, that when he was a boy and was away from home longer than he should have been, they never looked for him at the swimmin' hole, but always down at the brick plant. Anyway he certainly knows brick and their manufacture, because he has really lived in a brick atmosphere all his life.

For two years Mr. Strickland was superintendent of the American Building Brick Company, Cleveland, Ohio, one of the Sixth City's largest brick companies. His experience as a practical brickmaker has caused a demand for his services among the clay machinery manufacturers, and prior to his present connection he was in the employ of two other machinery companies in the capacity of travelling salesman.

For the past two years Mr. Strickland has acted as dryer expert for the Wellington Machine Company, and he has been an invaluable aid to the many clayworking concerns where the Wellington low-pressure vacuum system pipe rack dryer has been installed. He is a trained engineer as well as a brick man, and by his indefatigable efforts in behalf of the customers he serves, he has gained a host of friends in the industry.

Men of the Strickland type—virile, dependable and with a good fundamental knowledge of the needs of the industry—are the ones who are building for greater efficiency in clayworking. There are many others of the same character and it is the purpose of "Brick and Clay Record" to introduce some of them to our readers in each issue.

D. J. Strickland

Ricketson's Mortar Colors

Pure, brilliant in tone, economical in use, absolutely reliable and a permanent guarantee against fading and washing. Why not insist on having them?

Red, Brown, Buff, Purple and Black

Ricketson Mineral Paint Works, Milwaukee, Wis.

Anchor Brand Colors

For Mortar Cement and Brick

Brown, Black, Red and Buff Strongest and most durable

Manufactured by

C. K. WILLIAMS & CO., EASTON, PA., U. S. A.

Correspondence solicited

SCUM Do You Have It Can You Cure It ?

You could if you knew just where to look for it. Send sample of your clay, your temper water and your coal to me to be analyzed. I will tell you where the trouble is, and how to cure it.

H. M. DEAVITT, 209 So. La Salle Street, Chicago, Ill.

Clearfield Brick Machinery

FOR HARD SERVICE

Literature on Request

Clearfield Machine Shops, Clearfield, Pa.

Our business is diagnosing and remedying

TROUBLES

of manufacturing for the Clayworker. If you are experiencing loss in any department, mechanical, drying or burning, consult

H. & B. COPPING, Kankakee, Illinois

We personally do the work.

DRYER CARS

ALL STYLES—ALL SIZES

H. W. GERLOCK, Huntingdon, Penna.

"The Tanks with a Reputation"

Hoop Lugs made by Caldwell

will never slip or give way. They are the only "positive grip" lugs on the market. This lug does not depend on friction to hold it, as other lugs do.

Our catalogue of Tanks and Hoop Lugs, contains illustrations giving full details. Let us send you a copy and make you prices.

We can ship promptly.

W. E. CALDWELL CO., Inc. Louisville, Ky.

Tanks (*Steel-Wood*) Towers

(*Galvanized*)

Wind Mills—Pumps—Gas Engines

The Semi-Monthly Trade Review

THE PAST FEW WEEKS have not been without improvement, and indications of future prosperity in the nation's business are becoming more marked as the days go by.

Two of the leading concerns in the steel industry report a remarkable revival in the demand for their products, while the advance in the prices of the stocks of two or three other concerns in the same line reflect a fortunate state of affairs. It is thought that a revival of a similar interesting nature will soon be felt in other lines of industry. The United States Steel Corporation has just issued its quarterly report covering the period ending June 30 which reflects a decided improvement in the steel and iron industry. The total earnings of this company were more than twice those of the first quarter of the year while the monthly figures show a steady improvement. What these figures mean to the shareholders of the steel company is insignificant in comparison with its meaning to merchants, bankers, farmers, machinists and laborers.

While it is not probable that the hopes for a billion bushel wheat crop will be realized because of excess rain in some of the states which produce large quantities of this grain, indications are that another bumper crop will be harvested, probably exceeding even that of 1914. But wheat is not the only crop that promises to continue and enlarge the flow of gold into this country from across the waters. Nearly every commodity grown on the farm promises to break all previous records for the number of bushels that will be harvested, unless unfavorable weather conditions prevail during the remainder of the summer and early fall.

There are some who are inclined to be pessimistic regarding the corn crop which in many localities is weeks behind in its progress because of abnormally cool weather and an unusually heavy rainfall. These unwelcome prophets have failed to take into consideration the greatly increased acreage of corn which has been planted this year in the southern states and which promises to set a new high mark for the production of that grain in the South. Whatever the corn belt loses in the coming harvest will undoubtedly be more than offset by a bumper corn crop in Virginia, North Carolina, Georgia, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas and Tennessee. Indeed, it is said that 1915 is the first year since the Civil War that the South's corn crop promises to exceed in value its total cotton crop, which means that this portion of our country is taking almost unparalleled steps to eliminate the main cause for depression in its agricultural and industrial communities.

and is producing commodities which are more marketable than the former monarch, King Cotton.

And so with more than usual confidence the statement is made that prices for building materials of all kinds will be much higher this autumn than for some time past. Data now available from clay plants throughout the country leads to the conclusion that demand and supply will be in a reversed position than that which has ruled for several years. Production is far below normal for all kinds of clay products and it is hardly reasonable that this state of affairs can continue for a much longer period of time.

While the Chicago and New York City markets have been weak and in other sections conservatism prevailing among manufacturers is the cause of retraction, the Southwest and New England have been leaders so far as proportionate output and selling are concerned. Contemplative building construction alone in the last mentioned section amounts to $3,799,788, all of which has been authorized by permits for immediate construction. These factory extensions and speculative building projects for housing artisans are for the purpose of handling the $158,000,000 worth of war contracts that have been placed in New England mills in the recent past. The city of Bridgeport, Conn., alone has increased its population of skilled machinists and artisans by 22,000 since the war orders began to come in. It is the housing of these extra people that requires so much brick although much of this material is going into factory construction. Five-sixths of the mechanical population of Bridgeport is now working overtime on war orders and every factory is operating both day and night. Eighteen new factories or extensions were filed in New England between July 19 and 24. Some Hudson River brick is going into the lower end of Connecticut for the first time in years.

Of the ten leading building commodities, common-brick and linseed oil are the only ones that have not been featured by price advances in the East during the past few months. Portland cement, structural steel, lime, plaster, hardware, ornamental metal work, pipe, reinforced window glass, and even rope have gone up.

And so eastern brick manufacturers are "riding" the market for higher prices later in the season. They say there is already a limit to the possibility of a supply adequate for extensive stacking this autumn and the result will be much higher prices when the demand for brick develops, which according to present indications will be during the coming fall.

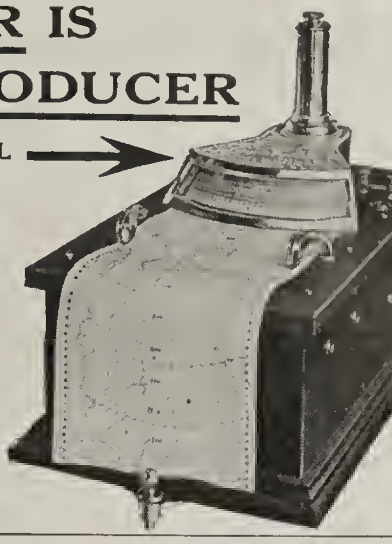
In Chicago and the lake region the settlement of the carpenters' and other building trades' strikes has released a number of building operations that have been held up for some months and has brought a renewed activity in construction work. The letting of the contract for the Field Museum, which will require material for a period of three years is just one indication of "boom" conditions which are quickly being restored in the "I Will" city. The Far West, the Southeast and the Northwest have not developed any great quantity of business but this is not to be taken as a discouraging sign.

Taking the country as a whole, one of the most noticeable features is a constantly growing spirit of confidence. The fact that our relations with Germany are becoming more and more strained does not seem to have any marked effect on the conduct of the nation's business. Improvement is noted in industries which for months have failed to show any progress whatsoever.

Summing up the entire situation, we have much to be thankful for after a year of war in which demands without

THE BURNER IS THE PRODUCER

HE READS ON THIS DIAL → the exact temperature of the kiln, both top and bottom—he knows when to fire and how to fire—and he produces first quality ware.

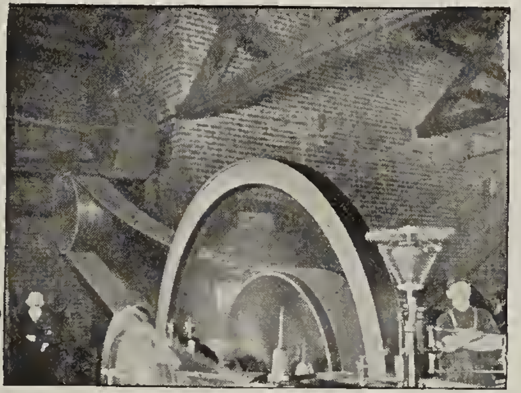


The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

It connects the Night and Day
In the long hours of the quiet night THINGS will HAPPEN

A Hardinge Watchman's Clock
helps the burner and the watchman
It is a Ticking Conscience
Our Booklet tells. Complete System, $36
Hardinge Bros., Inc.
1760 Berteau Ave., Chicago
Approved and labeled by National Board of Fire Underwriters

All Cling-Surface Users Talk the Same Way



"Best we ever used."
"Satisfactory, send 50 pounds."
"Very profitable."
"Just what we want."
"Never saw its equal."
"A mighty good thing."
"Very much pleased."
"Used C-S 10 years. It's O. K."
"Ideal in every respect."
"C-S ended our troubles."

You don't have to heat Cling-Surface now before using. Send us a trial order and see for yourself what economies can be secured.
CLING-SURFACE CO 1029 Niagara Street BUFFALO N Y

Link-Belt Silent Chain
The modern method of transmitting power
from prime mover to machine, or from line shaft to counter shaft. It shows the highest sustained efficiency of all mediums for the transmission of power (98.2% on actual test). It is as flexible as a belt—as positive as a gear and is more efficient than either

Write for Silent Chain Data Book No. 125 or send for a Link-Belt Service Man

LINK-BELT COMPANY
Philadelphia Chicago
Indianapolis

"Clinton" Brick and Mortar Colors

Unusually strong in pigment. Positively warranted not to wash out, "streak," or fade. Recognized everywhere as the standard of Brick and Mortar Colors.

Full particulars and prices gladly furnished.

Insist on seeing this label

Insist on the genuine "Clinton" colors made only by

Clinton Metallic Paint Co. Clinton, N. Y.
P. O. BOX 38

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

Why Take Chances

And run the risk of losing a nice order?

The Hinde and Dauch Corrugated Box

is economical, but it does what it was designed to do—*Protects Your Brick Thoroughly.* The corners and edges cannot get broken or chipped when it is used.

The Hinde & Dauch Paper Co., Sandusky, Ohio

THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

precedent have been made upon our financial and industrial institutions. The fury of the storm is now largely spent and the new era of prosperity is actually here.

In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

CALIFORNIA

The City Council of Marysville, Cal., has called for an election to take action on voting $18,000 in bonds for extensions to its sewer system.

The Los Angeles Pressed Brick Company, Los Angeles, Cal., is now having a branch railway built at a cost of $35,000 to connect its Richmond plant with the main line of the Santa Fe Railroad Company.

The Calexico (Cal.) Brick and Tile Company has been incorporated and will operate a $10,000 plant at that point, where the company has purchased an eight acre tract of land. This plant will have a daily capacity of 35,000 brick.

The Denison Block Company of Sacramento, Cal., has secured a contract to supply 250,000 pieces of hollow tile for the construction of the new Rainier brewery in San Francisco. The Denison company is now shipping tile for this job at the rate of two hundred tons per day.

The plant of the Niles (Cal.) Brick and Terra Cotta Company, which has been idle for some time, is now being overhauled, the engines and machinery being put into shape. Paving-brick and terra cotta will be manufactured when this plant reopens.

President Howard Frost and General Superintendent G. Larsen of the Los Angeles Pressed Brick Company, Los Angeles, Cal., have been spending a few days recently in San Francisco and at Richmond, Cal., visiting the northern plants of that company.

CONNECTICUT

The Central Connecticut Brick Company was the lowest bidder for furnishing 75,000 brick for the Lafayette street subway in New Britain, Conn., and has been given the contract.

DISTRICT OF COLUMBIA

The Washington (D. C.) Brick and Terra Cotta Company is furnishing 1,500,000 common-brick for the new colored high school now being erected in that city.

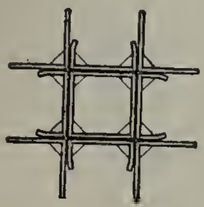
Washington (D. C.) brick companies are watching with interest the announcement of the award on the new Interior Department office building which is to be built of brick and which will take a large supply.

GEORGIA

The Southern Clay Manufacturing Company, has secured some large brick paving contracts recently at Atlanta, Ga.

IDAHO

Oscar Anderson of the Anderson Brick Manufacturing Company, Sand Point, Idaho, has secured a contract for all the brick to be used in the construction of the new electric power building to be erected at Thompson

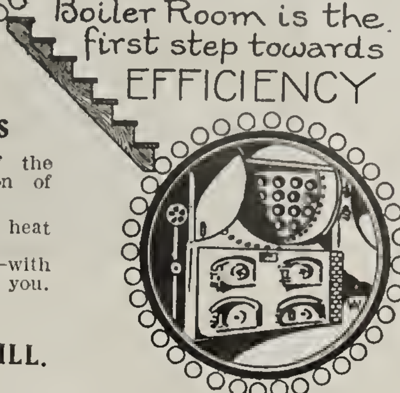


Always the Kind You Want

Our large stock of Frogs, Switches, Switch Stands, Portable Track—in fact, every kind of track equipment—enables us to always furnish you **just what you want**, at the **time you want it.**

Catalog C gives complete description.

CINCINNATI FROG & SWITCH CO.
CINCINNATI OHIO



A "CHICAGO" Flue Cleaner in the Boiler Room is the first step towards EFFICIENCY

Note the Cutting Edges

It cleans and scrapes the inside of the flues. It takes away the accumulation of soot, scale and dust.

It permits the boilers to absorb more heat from the flue gases.

It means—a higher, uniform pressure—with less coal. Parcel post will bring it to you.

Seehausen, Wehrs & Co.
177 N. Franklin St., CHICAGO, ILL.

A Fernholtz Clay and Shale Gatherer

will gather 80 to 100 yards in one day, from the surface of the field, with One Man and One Team.

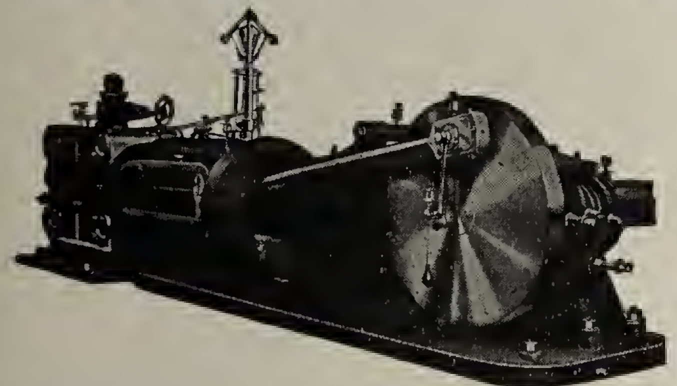
Surface Clay Plants

manufacturing brick and tile can cut their clay cost 50 per cent.

The Fernholtz Brick Machinery Co.
St. Louis, Mo.

Manufacturers of the famous Fernholtz Dry Press.

If more than 100 of america's largest brickmakers Say that no other than "Nugget" Babbitt is good enough for them—Why not try it yourself? only 15 cents per pound.
Cleveland Alloys Co.—Cleveland, Ohio



POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS

Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

Whoever runs a clayworking plant without

The Rust Special Clay Feeder

pays the price without having it. It's an unprofitable venture. Buy the best in clay feeders; use it and save its cost by the very act of using it; pay for it out of the profit it makes for you during the first year of service.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Let us send you our Catalog.

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices: Steubenville, Ohio

Mills: Newark, Ohio

BUCKEYE MEANS BEST

BEST MEANS BUCKEYE

All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

With your Shovel ?
In a hurry? Must have clay?
The Beam Swings and drops,
Rips and rams
For dipper load—
Swings back—then dumps—
and the chains—"They will not break"
if they're WOODHOUSE SPECIALS
We'll tell you why.
WOODHOUSE CHAIN WORKS Trenton, N. J.

Pyrometer Precision

You insist upon precision in all your departments. Why take a chance on its lack by the installation of anything other than THE STUPAKOFF STANDARD LE CHATELIER PYROMETER?

Write for a copy of "Pyrometer Facts."

The Stupakoff Laboratories
Pittsburgh, Pa.

STRENGTH UNIFORMITY DURABILITY
REG. U.S. PAT. OFF.

Swedish Steel Screen Wire
in coils or looped lengths

The Webb Wire Works
New Brunswick, N. J.

Swedish Steel Cutting Wire
in coils or looped lengths

TWISTED WRAPPED WIRES SOLDERED

Davenport Locomotive Works,
Davenport, Iowa

PERFORATED METAL SCREENS

As required for BRICK MAKERS USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

Manufactured by

HENDRICK MFG. CO.
CARBONDALE, PA.

New York Office
Room 1028 Cortlandt Building

Falls, Mont., for the Chicago, Milwaukee and St. Paul Railroad Company. The contract will call for nearly a million brick, which will be shipped at the rate of about 30,000 per day. The Anderson Company has now completed deliveries on the Famin building in Sand Point.

ILLINOIS

The Consumers Company, of Chicago, Ill., has established a fire-brick department with W. A. Sharp in charge, handling the products of the General Refractories Company and the Union Mining Company.

Frank Matteson of the Purington Paving Brick Company of Galesburg, Ill., reports that his company is doing a good business. While the sales are not quite up to last year's standard, which was a banner year, the number of orders being filled is very encouraging.

The Western Stoneware Company recently held its annual meeting at Monmouth, Ill., the following officers being elected for the ensuing year: I. F. Dains, president; W. J. Spencer, first vice-president; Horace Clark, second vice-president; H. W. Miller, secretary; W. J. Ralston, treasurer; and J. B. Brown, general counsel. During this meeting it was decided to make certain improvements at the Monmouth and Macomb plants of the company. These plants are now operating to capacity with enough orders ahead to keep the usual force of men busy during the fall and winter.

INDIANA

H. C. Adams, representing the Danville (Ill.) Brick Company, in Indianapolis, is pushing a wire-cut brick for paving.

William Kerman of the Brazil (Ind.) Face Brick Company, will shortly take charge of the sales department of the Montezuma Brick Works. The latter company, it is expected, will open an office in Indianapolis.

Richard Sedgwick, representing the First National Bank, of Richmond, Ind., one of the largest creditors of the Richmond Brick Company, recently bought the brick company's property at a receiver's sale for $12,697.23. The property covered sixty lots, which will be sold at private sale without delay.

William C. Teschner has purchased the interests of Fred Kixmiller, who with his uncle, August Kixmiller, has been operating a brick plant east of Vincennes, Ind., on the Monroe city road. The new firm will be known as the Teschner-Kixmiller Company. Mr. Teschner has been in the contracting business a number of years.

KENTUCKY

Mills and Trubble is the name of a new firm, composed of Parker Mills and F. K. Trubble, who have engaged in the building supply business at Danville, Ky. Both men are experienced in the business.

The Eastwood Ferry Brick and Tile Company, which has recently completed its new plant on the Green River, near Sebree, Ky., is now making brick. The first kiln has been fired and the work of the plant will continue steadily.

After a run of four months the plant of the Hillenbrand Brick Company, Louisville, Ky., has been closed down for an overhauling and replacing of some of the machinery.

The brick for the Belknap school in Louisville will be supplied by the Coral Ridge Clay Products Company, of which there will be a half million. The plant is

Let The Burner Have A Thwing

Indicating Pyrometer in his shed connected by a dial switch to one or more Thermo-couples in each kiln.

Then he will not need to be making excuses for poor firing and poorer product. With a knowledge of the temperature before him, he can control his firing and produce better ware with less fuel.

Write for Bulletin No. 7

Thwing Instrument Company
437 N. Fifth Street, Philadelphia, Pa.

But—You Can't Do It!

You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

UNLESS

You have a fleet of
INVINCIBLES

Look!

IT IS BALANCED

The axle is under the load—NOT at one end of it. It slides—down the runway—and the hind legs don't rip and tear.

It Rides its Load

THE TORONTO FOUNDRY AND MACHINE CO.
TORONTO, OHIO

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Paving Contractors

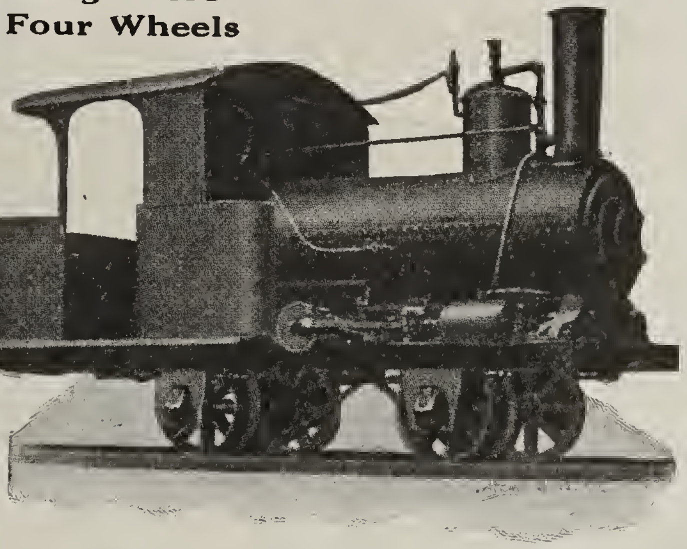
who use Lehigh Cement for base, filler and grout on all brick paving work

Know Exactly What the Results Will Be

They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.

LEHIGH CEMENT

"Getting There" on Four Wheels



THE DEWEY 5-Ton Locomotive

Costs $1200 About as Much as a Good Team of Mules

It Never Balks on Heavy Loads or Grades

It pulls a full load under every condition and on any track. Does more and costs less than any type of Standard Locomotive of same size and power.

"Let the Dewey Do Your Work"

Write

for descriptive literature and "reasons why" you will save money by having the Dewey in your plant.

DEWEY BROS.
GOLDSBORO, N. C.

FOR SAFETY'S SAKE USE THIS NEW

DU PONT

Blasting Machine

ELECTRICAL blasting is being adopted more extensively since the perfecting of apparatus and methods. The using of electrical current provides a more positive, stronger, efficient means of detonation than caps and fuse.

Electrical blasting enables the operator to determine the proper time for detonation to insure safety to all employes.

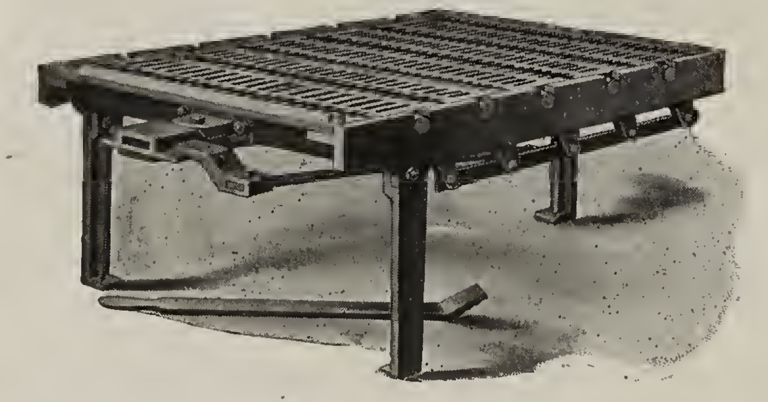
Electrical blasting eliminates hang fires, increases the efficiency of explosives and makes possible the firing of several shots at one operation.

For safety's sake, insist on your blasters using electrical blasting machines.

FOR SPECIAL INFORMATION ABOUT ELECTRICAL BLASTING WRITE TO DEPARTMENT 419

DU PONT POWDER CO.
Established 1802
Wilmington, Delaware

THE CANTON KILN GRATE



FOR THE PLANT THAT COUNTS THE COST

Are you sick and tired of the kiln furnace that gums up every four hours or less with a ball of clinker?

Do you want to prevent the loss of 100° of heat each time clinker time comes?

Do you want to put one dollar's worth of heat into the kiln, from each dollar's worth of coal you buy?

Would you fire your boilers with the same kind of furnaces that you use on your kilns?

Basically—aren't they the same?

THINK—It is applied common-SENSE. Avoid spending so much money for coal.

Send for Bulletin B. It tells you how

CANTON GRATE CO.
1706 Woodland Ave., CANTON, OHIO

running full time and is turning out a large quantity of brick.

The numerous small building operations which have been in progress in Louisville during the first part of the summer have been interrupted frequently by rains. The weather appears to have become more settled now, however, and it is the hope of those who will undertake the larger structures that the weather will not interfere with them.

A. P. McDonald, sales manager for the P. Bannon Pipe Company, Louisville, reports the sale of twenty-five carloads of sewer-pipe to the city of Cynthiana, Ky., which is installing a storm water sewer system. The company is looking forward with considerable interest to the placing of orders by the Speed estate for hollow tile to be used in its new building. The company's Louisville brick plant is operating steadily.

While building operations in and about Louisville are slowly improving, the interest of brick and clay products manufacturers is centered on what the next few weeks will bring forth in the way of contracts for new projects under way or soon to be started. The biggest of all is the Speed building on Fourth Street, while the Y. W. C. A., the plans for which have been prepared by J. B. Hutchings, and the Belknap school, are the other projects about ready to be built.

The plant of the Southern Brick and Tile Company, Louisville, Ky., is operating steadily manufacturing both brick and tile. Shipments are being made regularly to the Highland Park and Oakland schools, which call for 500,000 common-brick, while out-of-town business is holding up well and promises to continue doing so. T. Bishop, secretary of the company, has been spending a considerable amount of time at Auburn, near Bowling Green, Ky., where his first installation of a tile on the farm of Dr. J. N. McCormack was followed by another order from the same man for further tiling. Shipments are going to this as well as to other tile jobs now under way in various parts of the state.

LOUISIANA

The Salmen Brick and Lumber Company, Slidell, La., is experimenting with water shipments to various points in Louisiana which, if successful, will be used to cover the entire state in the distribution of this company's products. A shipment of approximately twenty carloads of hollow building tile was recently made from Slidell to Alexandria, La., by water, resulting in a saving of about thirty per cent in transportation charges, and in time of loading and unloading. This company already operates fifteen barges and three tugs making shipments along the Gulf coast.

MARYLAND

The Queen City Brick and Tile Company of Cumberland, Md., has been awarded a contract by the City of Washington, D. C., to furnish between 800,000 and 1,000,000 brick for the paving of certain streets in that city.

The Octagon Insulation and Ceramic Company, Northwest, Md., has been incorporated for the manufacture, among other things, of brick and clay products. The new concern will have a capital stock of $50,000, the incorporators being George Simcoe, Albert E. Smith, Washington Holt and W. H. Simcoe.

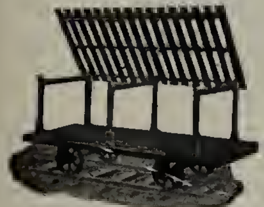
Cyrus A. Byers, manager of one of the largest fire-brick establishments in Baltimore, Md., died recently in the Hebrew Hospital, Baltimore, after suffering for some time from a complication of diseases. He was a member

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

We Manufacture

Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.



Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

Lakewood Engineering Co.

Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

BP GEARS

Guaranteed to cut your gear cost in half and give three and one half times the life of untreated cast steel.

Write

Nuttall--Pittsburgh

To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

Literature on Application

Other High Grade Chemicals For Clay Industries

The Roessler & Hasslacher Chemical Company

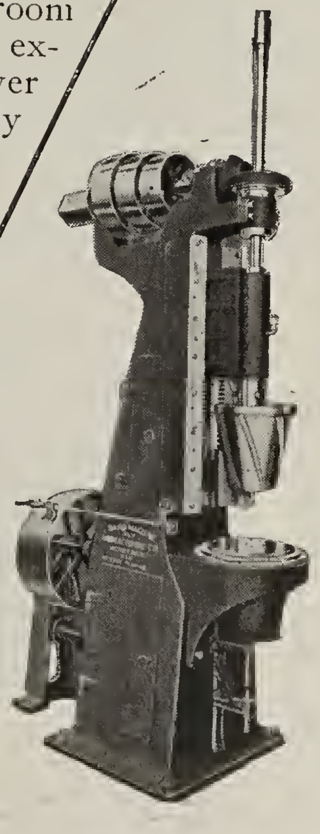
100 William Street, New York

A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machineroom men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.



Baird Machine & Mfg. Co.

54-56 Jefferson Ave.
Detroit, Mich.

When You Dump Your Cars—
of Coal
or Sand

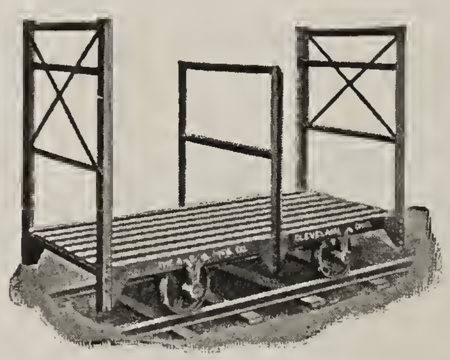
Use a Hessteel Automatic Safety Car Wrench

It minimizes the danger that is usually present when hopper bottom cars are dumped. It opens up the hoppers quickly, positively and safely—for it is a wrench with a long, strong lever arm, and with an automatic safety principle that prevents accidents.

You must have a car wrench. Why not make it an automatic safety wrench.

Let us send you particulars.

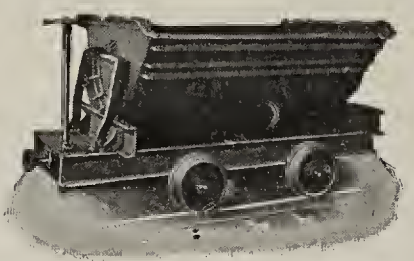
THE HESS STEEL CO.
Bridgeton New Jersey



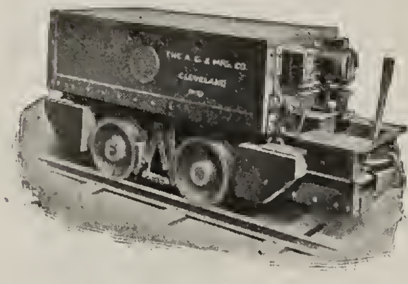
No. 1205
Triple Deck Dryer Car supplied with or without decks of wood or steel.

Reduce Your Handling Costs
by the Purchase of Efficient Equipment

ATLAS
High Efficiency Cars and Electric Locomotives



Rocker Side Dump Car
Also made in end dump. Above car made for loading with steam shovel.



No. 5730
Storage Battery Locomotive. One end operated.

will meet your requirements.

Let us send you catalogue and quote prices.

The Atlas Car & Mfg. Co.
Dept. I
1287 Marquette Road, Cleveland, Ohio

of the Union League of Philadelphia, the Manufacturers' Club, and was one of the most active Free Masons in Philadelphia, and a noble of the Mystic Shrine.

MASSACHUSETTS

The New England Brick Company, Boston, Mass., has secured a large order for brick to be used in the construction of the Massachusetts General Hospital in Boston. There are several other important building projects in sight in that city which will require large amounts of brick, among which is a large office building to be erected at the corner of Tremont and Boylston streets.

MICHIGAN

The Detroit Vitrified Brick Company, operating a plant in Caledonia township, has changed its name to the Wolverine Brick Company.

Brick and hollow tile will be used in the construction of the new power building for the Grand Rapids-Muskegon Power company at Grand Rapids, Mich.

The Metropolitan Brick Company has secured a contract for furnishing the city of Kalamazoo, Mich., with 613,000 repressed brick paving blocks.

The building committee of the Commercial Savings Bank, Grand Rapids, Mich., has conceived a novel way of deciding what brick to use in the construction of its new building. A miniature wall was built against the granite of the new Masonic Temple to test the effect of the different types of brick against it, as the same granite is to be used in the bank building.

Concerns supplying brick to the upper peninsula of Michigan report the best business in their history. Because of the fact that all of the copper mines are running to capacity, this region is enjoying an immense boom, and new buildings are being erected in every section. Wages have been raised five per cent and this is also helping materially to make that section of the state highly prosperous.

The United Fuel and Supply Company, occupying practically the entire second floor of the Free Press building, Detroit, is adding a face-brick department and plans going into this end of the business on a most extensive scale. The services of H. A. Walters have been secured, who for ten years has been connected with the Hydraulic-Press Brick Company. In addition to the face-brick department, Mr. Walters will also have charge of the terra-cotta department.

Over 1,000,000 common-brick and 285,000 face-brick were used in the new plant of the Wagner Baking Company, Detroit, Mich. All of the walls in the building are finished with face and backed by common-brick, the superstructure being of steel. The inside walls of the wagon room, driveway, boiler room, wrapping room and receiving room are lined with glazed brick from the floor to the ceiling; and in the boiler foundations and ovens are many fire-brick, making a grand total of over 2,000,000 brick of all varities used.

MINNESOTA

The Twin City Brick Company of St. Paul, Minn., has established a branch office in Sioux City, Ia., under the direction of C. C. McComb, assistant sales manager of that concern. Display rooms are to be installed in this new office which, when completed, will show more than one hundred samples of brick.

The plant of the Heron Lake Brick and Tile Company, Heron Lake, Minn., was struck by a tornado during the

A Bucket of Paint

That You Cannot Afford To Be Without

It can't burn, it's proof against acid, gas and fumes. It fills up holes that otherwise wouldn't be filled. It stops leaks of air—in or out. It covers inflammable material, so that sparks cannot set it afire. It is sanitary, it is clean, it is durable.

It is Carbide Paint

and it serves in a remarkable way. It is used on kiln walls, crowns, flues and linings, to seal up the cracks and leaks. It is used on all dry house walls to serve the same purpose. It is used on all buildings from roofs to floor—to fireproof and preserve.

Let us tell you more

E. R. STOWELL
Inventor and Patentee
Oden Michigan

"Their intentions were good
But
The results proved unsatisfactory"

The above refers to two leading manufacturers — at present our clients — who felt they did not need our Service and tried to do their own efficiency work.

Later, less than two months of our Service revealed possible savings of over $75,000.00 for one and over $100,000.00 for the other. In a personal interview, we will be pleased to give particulars.

One of these is a Clay Plant.

Let us solve your "Knotty Problems." That is our business.

L. V. Estes, Incorporated
Raise Wages While Cutting Costs
McCormick Building
Chicago

Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives

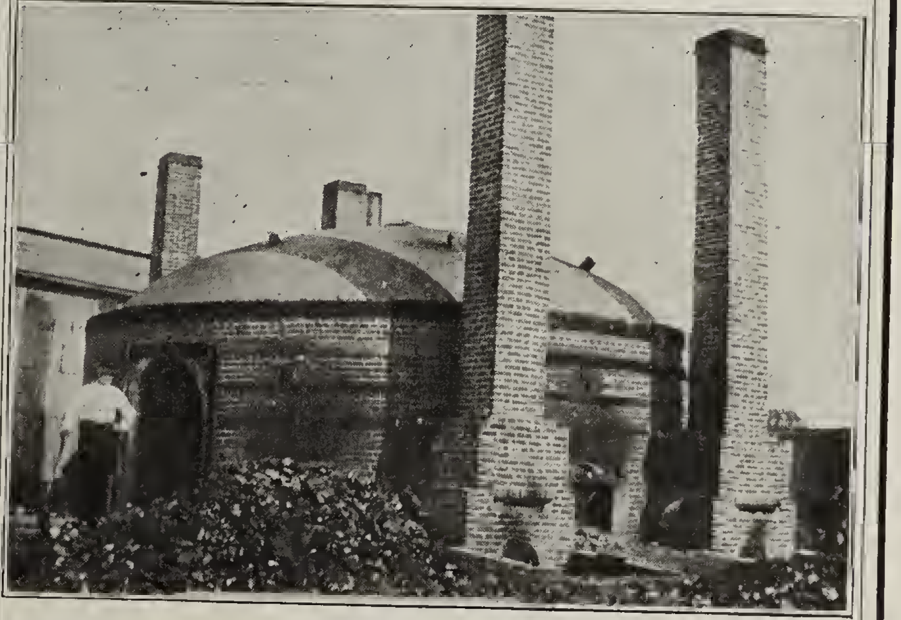
are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.

A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works

Philadelphia, Pa., U. S. A.

Represented by
F. W. Weston, 50 Church Street, New York, N. Y.
Charles Riddell, 625 Railway Exchange, Chicago, Ill.
C. H. Peterson, 1610 Wright Building, St. Louis, Mo.
George F. Jones, 407 Travelers Building, Richmond, Va.
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.



The Improved Hook Patent Up and Down-Draft Kiln at Forest, Ohio

Mr. Asa Conley, who operates the Forest Brick & Clay Works, writes us under date of June 21, 1915: "This kiln has exceeded my expectations. I am producing good hard-burned ware on bottom courses. The direct heat can be applied at top and bottom at the same time, and it burns the ware uniformly."

Thirty-foot kilns of brick were burned in 82 hours, and 30-ft. kilns of tile, in 55 hours, including the watersmoking period. This kiln burns the ware uniformly, reduces the fuel consumption, lessens the time required to turn a kiln, and increases the output of salable ware.

The Improved Hook Patent kiln is the result of 27 years experience in the clay-product industry and is the most modern kiln on the market today. Can be installed in any kiln at a moderate expense. Write us for estimate of cost to change your kilns or build.

Ohio Kiln Company, Vigo, Ohio

Here's a Clay Elevator Made to Suit Your Individual Requirements

The Stevenson

Guaranteed to work in either dry or wet clays.

Belt elevators run smoothly and noiselessly.

Made in any height, to handle any amount of material, any number of plies or kind of belt.

Made in the usual high grade that characterizes all STEVENSON products. Boot very heavy, with cast iron sides and ends, fitted with adjustable bearings and tighteners for taking up belt. All parts easily reached for cleaning and repairs.

Any width belt desired, or size of bucket.

Let us send you our complete catalog of clay working machinery and tell you more about the Stevenson elevator.

The Stevenson Company
Wellsville, Ohio
"In the Heart of the Clay Industry"

second week in July, the new clay storage building together with its equipment being completely destroyed. All but one of the fifteen stacks on the kilns at this plant were blown down, including the main eighty-foot stack. A hole was blown right through one of the walls of a building, while two smoke stacks smashed down on the roof of the dryer, in one place going through into the tunnels. The damage done by this tornado, however, has been largely repaired and the plant is now running as usual.

OHIO

The Harris Brick Company of Cincinnati, Ohio, has increased its capital stock from $50,000 to $150,000.

The Brunt Tile and Porcelain Company, Columbus, Ohio, has increased its capital stock from $10,000 to $150,000.

Allen R. Raff, of Raff and Company, Cincinnati representatives of the New Jersey Terra Cotta Company, reports the landing of some fairly good contracts during the past few weeks.

J. B. Nicholson, of the Toronto Fire Clay Company, Toronto, Ohio, and Woodrow Nicholson, his son, were recently in Cincinnati on business, visiting several material concerns while in the city.

Adam R. Kuhlman, vice-president of the Toledo Builders' Supply Comany, Toledo, Ohio, which handles brick and terra-cotta, reports that sales so far this season are far ahead of the same period last year.

The plant of the Kirchner Brick Company, at East Fultonham, Ohio, is being overhauled and remodeled with a view of increasing capacity and otherwise getting ready for active business later on. The company's face and paving brick lines have established themselves in Cincinnati and several other large markets, and its management is sufficiently confident of future business to get ready for it.

Sentiment in the Jamestown, Ohio, city council, favors brick as the material to be used on Main street, which is to be paved to form a connecting link between two important state roads, both of which are being repaired. Paving in Xenia, which is a nearby town, connects on the east with the state roads, and it is desired to make a long stretch of first-class paving between the two towns and extending in both directions. City Engineer Shumaker, of Xenia, is in charge of the Jamestown paving.

Reports indicate that the Burton-Townsend Brick, Fuel and Supply Company, of Zanesville, Ohio, is enjoying a good business, considering the character of the season. The company has modernized its principal plants by the installation of the latest machinery which is driven by electricity wherever possible. An additional unit is to be built at once, it is announced, on the company's property near Zanesville, to meet the increasing demand for its products.

A brick of decidedly unusual and attractive appearance has been added to the line of the Pursell-Grand Company, of Cincinnati, and bids fair to be a winner. It is a rough-texture, diamond-scored brick of a distinctly greenish tinge being closer to a full green than any face-brick, not enameled, which has yet been seen here. The new brick has been specified in a handsome residence to be constructed in Avondale, and the company looks for much popularity for it when the first job has been finished.

The Anders Shale Brick Company is beginning to find

High Burning Costs

Will you bring them down—down to a figure that means profits — that means that you pay for fewer carloads of coal?

You get better ware, too. It is being done by using

The

Hook System

It is designed to extract every possible unit of heat from the coal. It is *built into* your kilns. The chances for overburned tops and underburned bottoms are minimized. The neat distribution is uniform.

It will produce

Low

Burning Costs

It is doing it Elsewhere —
It can do it for you.
Ask for proof.

The Hook Patent Kiln Co.
Main Office, Vigo, Ohio
Canadian Office, 250 Dufferin St., Toronto, Ont.

Marion
REVOLVING SHOVELS

SOME of the most successful business people are men who work only part of each day. They never seem to worry, yet they get a pile of work done. They are *efficient.* THEY MAKE USE OF EVERY MINUTE.

And that's why so many brick-makers are using Marion Shovels to get out their clay. *MARIONS* are efficient, too—and they make a splendid investment for nearly any operator, even when they are kept working only part time.

If it costs you more to run a crew of hand-diggers all day than it would to run a Marion Shovel only a small part of the day, volume of clay handled being the same in each case, it surely would be good economy to change over to "the Marion Way," as many another brick manufacturer has done with great profit to himself.

Your Cheapest Method of Taking Out Clay, Figuring Cost Per Thousand Brick, is With a Marion Shovel

—even though you run it only part of each day and think you have nothing else for it to do the rest of the time. But you will probably find there are plenty of "chores" you can give it to keep busy at, when it isn't digging clay.

We have the facts all ready for you, in our interesting booklet "Digging and Mixing Clay—One Operation."

Glad to send you a copy on request for Catalogue 921.

The Marion Steam Shovel Company,
Established 1884
STATION A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
Manufacturers of Excavating Machinery of Every Description.

15

"Premium" Coal
Produces
Better Brick and Tile
for
Less Money

Because:

It lasts longer—
It contains more heat—
It leaves less ash—
It produces a long, steady flame—
It does not clinker.

We are supplying some of the largest brick and tile manufacturers in the Central West.

They are saving money in their fuel requirements by using our coal, and you can do the same.

Analysis of "Premium" Coal

Moisture	6.00%
Volatile Matter	37.89%
Fixed Carbon	47.11%
Ash	9.00%
	100.00%

B. T. U. Dry, 13450

"BIG CREEK SERVICE"
means high quality products, as you want them and when you need them.

Big Creek Colliery Company
Peoples Gas Building
Chicago
Galesburg, Ill. Minneapolis, Minn.

need for the greater capacity of its plant which is to be furnished by improvements now under way, and which will give it an output of 30,000 brick a day. The company, according to President John Anders, was fortunate in securing several good-sized contracts, which are taxing its present capacity of 20,000 to the utmost. One of these calls for 800,000 hollow and common brick for the new buildings at the University of Cincinnati, while another, recently closed, involves furnishing 200,000 brick for the Hamilton Avenue sewer.

The Cincinnati (Ohio) Clay Products Company has recognized the advertising value of being able to point to the use of its products in buildings actually under construction. Structures where brick sold by this company is being used are now marked by large and attractive signs. These signs are much more conspicuous than the ordinary small sign which is generally used for this purpose and are, therefore, more preferable. Brickmakers, and the public generally, have commented very favorably on these signs, and it would not be surprising to see this method of advertising brick adopted to a great extent in Cincinnati.

OREGON

The Portland (Ore.) office of the Denny-Renton Clay and Coal Company is supplying the Jacobson-Bade Company with one thousand feet of twenty-four-inch and four hundred feet of twenty-inch sewer-pipe for a job at Albany, Ore. The same company has also secured a contract to supply 4,000 square yards of hillside vitrified paving brick for the City of Portland to be used on Astoria Street.

PENNSYLVANIA

B. F. Barkey, a representative of the Harbison-Walker Brick Company, recently left Grampian, Pa., with a crew of twenty men for Strassburg, Ohio, where they will start the building of a large brick plant.

The town council of Topton, Pa., has granted the order of the Auburn Shale Brick Company for a sum of money due for work done in that city, and has ordered that same be paid.

Suit has been filed in the prothonotary's office, Allentown, Pa., by the Lehigh Valley Trust Company as trustee for the bondholders, to recover the interest on $95,000 outstanding bonds issued by the Allentown Brick Company.

Building operations in Philadelphia have been very good during the past several weeks and many of the structures in course of construction are of brick. That conditions in Philadelphia have been of a favorable nature is proven by the fact that it was the only large city in the United States to show a gain for the month of June, according to authorative statistics. There has been a consistent demand for building brick during the summer season and paving brick has been running a close second, according to prominent members of the local industry, many of which believe that business will further increase during the weeks to come.

TENNESSEE

The South Memphis Brick Company, of Memphis, Tenn., in addition to its brick lines is handling hollow and drain tile.

The clay pits of the Johnson-Porter Clay Company, Paris, Tenn., which are located near McKenzie, Tenn., have been re-opened after being closed for a few days.

The city commission of Chattanooga, Tenn., is con-

CHICAGO BRICK MACHY CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

- Elwood Dry Press
- Auger Brick Machines
- Down Delivery Tile Mills
- Oil Burning Equipment
- Crude Oil Engines
- Piano Wire Screens
- Dry and Wet Pans
- Soft Clay Brick Machines
- Pug Mills
- Wet and Dry Clay Disintegrators
- Smooth and Conical Roll Crushers
- Wood Moulds
- Trucks and Barrows
- Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

GANDY

MAYBE YOUR BELTING requirements are peculiar. Next time try "Gandy."

The big increase in Gandy sales—our sales have grown every year for 36 years—is proof that Gandy Belt does give satisfactory service. What it does for others it will do for you.

Gandy Stitched Cotton Duck Belting

Much less than the cost of either leather belting or rubber belting it often does the work satisfactorily, where other types of belting fail to give results.

You will see how water, oil and dustproof it is; how it grips on the pulleys—how it W-E-A-R-S!

Can we send you samples and quote prices?

The Gandy Belting Company
732 W. Pratt Street, Baltimore, Md.
New York Office—36 Warren Street

MERELY debating the matter in your own mind will never enable you to understand the full measure of burning economy that is characteristic of the

Underwood Producer Gas Burning System

Patented

For Periodic Kilns

But if you will let us debate it with you, our arguments cannot help but turn you from a skeptic to a believer.

If you really are in the "doubting Thomas" class and must **see** before you believe, then why don't you investigate the matter fully by visiting one of the plants at which this system is installed and regularly operated and bringing to its users a saving that is astounding?

If you don't know how to reach these plants let us give you full directions.

The Manufacturers Equipment Co.

Everything for the Clayworker

Dayton, Ohio, U. S. A.

sidering plans for placing wires along the principal section of Market Street in conduits. It will soon be necessary to repave this street and it is suggested that the opportunity to bury the wires will be taken to good advantage.

A drainage petition has been signed by landowners representing about seventy-five per cent of the acreage in the bottom and overflow lands of the Middle fork of the Forked Deer river between the Mobile and Ohio Railroad and Horn's Blubb, a distance of about fourteen miles, in Gibson County, Tenn. An extensive drainage system is contemplated at this point in which drain tile will be used.

UTAH

The first large brick building to be erected in Duchesne, Utah, county seat of that state's newest county, has been started, and when completed, will house the Duchesne bank and other firms. It is expected that before winter suspends building operations, several other brick buildings will be erected in this new town of the far West.

VERMONT

G. E. Laird of Rutland, Vt., has accepted a position as superintendent of the Williams Clay Works plant at Monkton, in the same state.

The Rutland (Vt.) Fire Clay Company recently held its semi-annual meeting of salesmen. Business conditions were discussed and a new sales campaign was planned for the next six months.

WASHINGTON

The Northern Clay Company, of Auburn, Wash., has the contract for furnishing the terra cotta for facing the Coliseum theater in Seattle, a $200,000 moving picture house which the C. D. Stimson Company will erect.

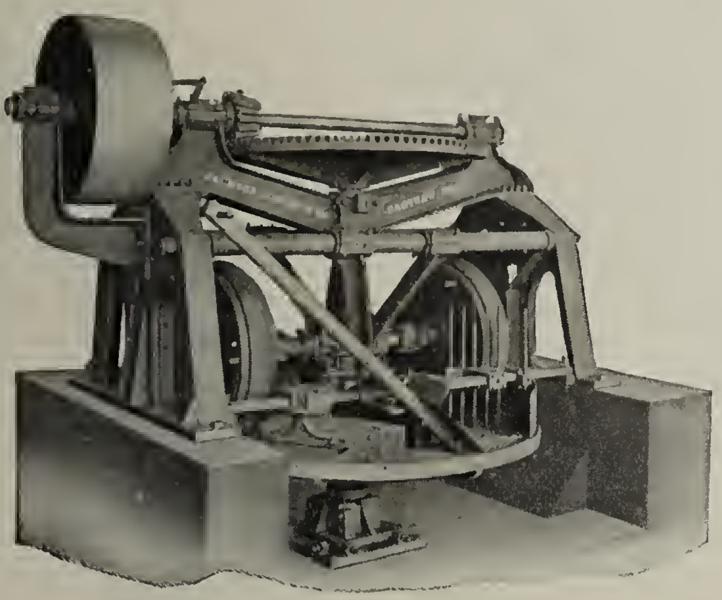
The Richmond Beach Brick Company has been incorporated at Mt. Vernon, Wash., with a capital stock of $70,000 to engage in the brick manufacturing business. The officials of the new company include: E. Branchflower, I. N. Gallagher and H. Gay.

Paul St. Clair MacMichael, president of the Northern Clay Company, of Auburn, Wash., and one of the best known brick men of that section, was married on June 16th to Miss Olive O. Stafford, of Seneca, Mo. Mr. and Mrs. MacMichael will reside in Seattle.

Fulton and Carlson, of Ellensburg, Wash., contractors for the construction of the new dormitory at the Washington State Normal School, Ellensburg, have placed an order for the required building brick with the Builders' Brick Company, of Seattle. The interlocking tile to be used will be supplied by A. B. Fosseen and Company, of North Yakima, Wash.

H. F. Goss of the Goss Brick Company, Tacoma, Wash., reports that the company has now completed deliveries on the common-brick for Sears, Roebuck and Company's building in Seattle. This company has just closed a contract to supply a million and a half common-brick and 60,000 square feet of hollow tile for the Tacoma Smelting and Refining Company for immediate delivery. The fireproofing for the new Elk's building at Tacoma is also being manufactured at this plant.

The Washington Brick, Lime & Sewer Pipe Company, of Spokane, Wash., has been enjoying an active season and is operating all but one of its mills, shipping daily in carload lots to all parts of the Inland Empire. Among



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

THE THEW SHOVELS

20 to 30 Cents an Hour for Fuel—

But One of the Advantages of the Thew Gasoline Shovel

Type 0 Thew Gasoline Shovel— ¾ yard Dipper

THIS shovel has the horizontal crowding motion, prying motion, swivel motion of dipper, and full circle swing feature, which are standard with all Thew Shovels, the only difference being in the kind of motive power.

It requires no fireman, is operated by one man, and demands no licensed engineer.

The cost of operating is particularly low, as only 20 to 30 cents' worth of gasoline is consumed per hour; there is no expense for hauling coal, for boiler insurance, or boiler upkeep, and no time is wasted in getting up steam, banking fires or blowing off boiler.

Complete advantages of this new shovel are explained in a new circular which will be sent on request.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send new circular and give me further facts about gasoline shovel as advertised in Brick & Clay Record.

Name________________

Address________________

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

The curve on my tonnage cost chart has taken a slant toward the low figures since we put in those Goodrich belts.

—Supt. Wise

Uninterrupted service is one factor in the reduction of tonnage costs—by Goodrich belts. No shut-downs—no delays.

Flexibility is another Goodrich tonnage cost-cutter. No spillage and less wear.

"Longlife"—*longer* service—gives you more tons per *initial* cost.

An edge construction that will not tear off is a feature also of our strong, perfectly balanced belts.

Goodrich
LONGLIFE and MAXECON
CONVEYOR BELTS

are so skillfully proportioned—so well fitted for the work *you* want done, and so well fortified by duck and friction and rubber cover that you *need* them in your plant. If you want to see your tonnage costs come down *"Get in touch with Goodrich."*

Goodrich Products:

Conveyor Belts Transmission Belts Packing
Elevator Belts Hose—all kinds Valves, etc.

The B. F. Goodrich Company
Factories: Akron, Ohio
"Get in touch with Goodrich"

the contracts recently booked are those for supplying brick and terra cotta for rebuilding the Mohawk building, Spokane; the terra cotta and brick for the new St. Augustine church on the South hill, Spokane; seventy cars of sewer pipe for Butte, Montana; twenty-five cars for Roundup, Montana; ten cars for Walla Walla, Wash., and numerous other orders.

The general land office, Washington, D. C., has decided that deposits of clay can not be entered under the United States mining laws unless of commercial value. The decision which was rendered by Land Commissioner Clay Talman, upholds the Seattle, Wash., office on this question. Decision was rendered in the case of Oren W. Brown againt the Northern Pacific Railway, decided adversely to the plaintiff by the local office about 18 months ago. A contest was started in 1913 against certain filings made by the railroad in Snohomish county in 1912. Brown set up that the tract filed on was mineral and contained clay deposits of commercial value.

WYOMING

That the Yellowstone Sulphur Company, Cody, Wyo., contemplates further activity at its plant is evidenced by the fact that an order was recently placed with the Cody Brick Company for 45,000 brick. It is also understood that a quantity of fire-brick is being shipped from Denver, Col., for use at this company's mines where the metal retorts which were originally installed, have proved a failure because of the action of the sulphuric acid generated in these retorts.

Freight Tariffs and Troubles

(*Continued from page* 194)

cwt.; to Leola, S. D., 20½c per cwt.; to Le Beau, S. D., 21¼c per cwt.

From Galesburg, Ill., brick (except bath or enameled) to Fargo, N. D., $3.80 per net ton.

From Hamilton, Ill., brick and hollow building tile, to Hannibal, Mo., $1.05 per net ton.

From Ottawa, Ohio, brick, to Cleveland, Ohio, $1.10 per net ton; to Decatur, Ind., and Detroit, Mich., $1.05 per net ton; to Findlay and Toledo, Ohio, 63c per net ton; to Fort Wayne, Ind., and Fostoria, Ohio, 68c per net ton; to Lima, Ohio, 53c per net ton; to Piqua, Ohio, 89c per net ton and to Van Wert, Ohio, 84c per net ton.

FROM WESTERN POINTS

From Joplin, Mo., brick, to Helena, Ark., 7½c per cwt.

From St. Louis, Mo., drain tile, to Watertown, S. D., 19c per cwt.

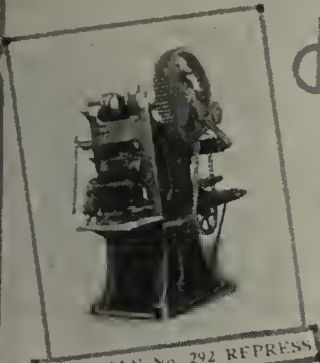
From St. Louis, Mo., brick (except bath and enameled) and articles taking the same rates, to Watertown, S. D., 19c per cwt.; to Aberdeen and Leola, S. D., 21½c per cwt.; to Le Beau, S. D., 24½c per cwt.

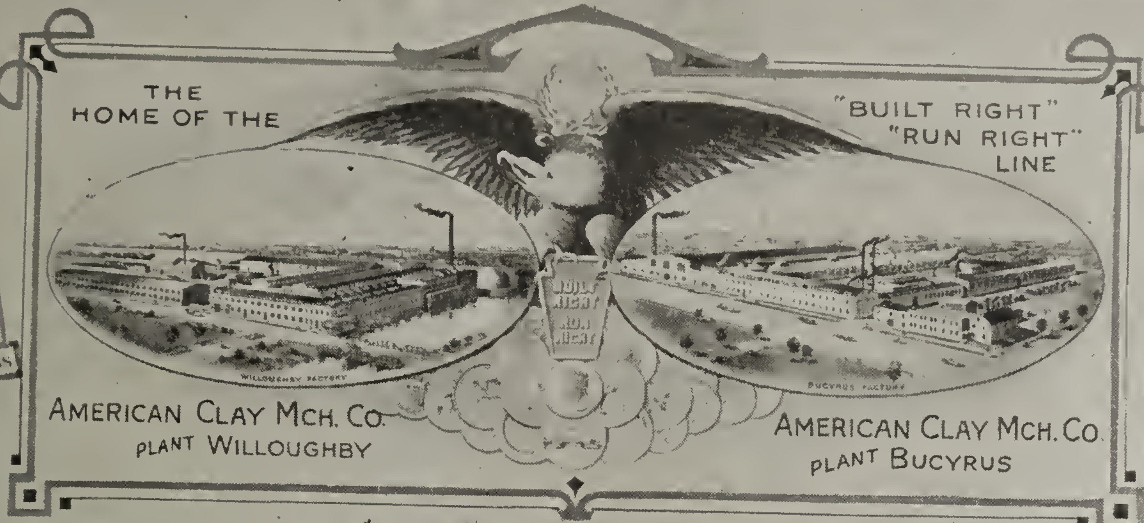
From Swadley, Colo., brick (except enameled, glazed, face and fire-brick) to Phippsburg and Steamboat Springs, Colo., 10c per cwt.; to Hayden, Colo., 11c per cwt.; to Craig, Colo., 12c per cwt.

FROM SOUTHERN POINTS

From Ayersville, Ga., brick, to Anderson, Greenville, Seneca, Spartansburg and Westminster, S. C., 4c per cwt.; to Clarksville, Ga., 2.7c per cwt.; to Gainesville, Ga., 2¼c per cwt.; to Toccoa, Ga., 1¼c per cwt.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.


AMERICAN No 292 REPRESS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"BUILT RIGHT" "RUN RIGHT" LINE
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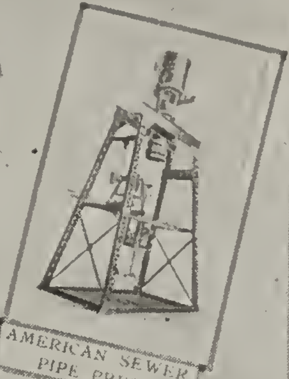
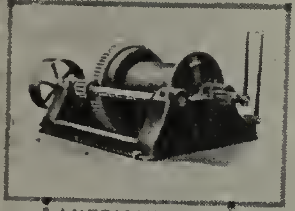
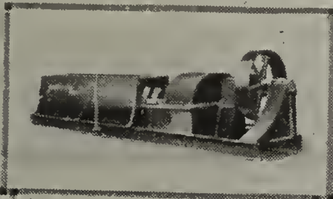
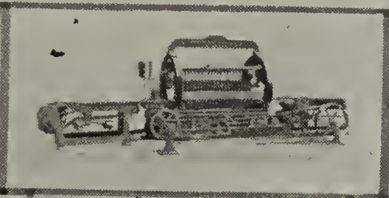
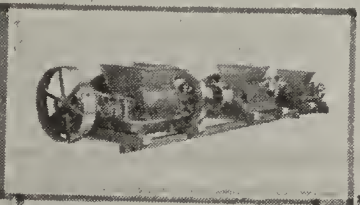

AMERICAN SEWER PIPE PRESS

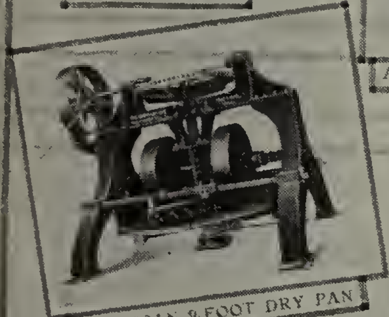

AMERICAN No 245 WINDING DRUM


AMERICAN No. 291 PUG MILL

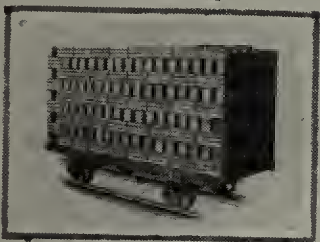

AMERICAN No. 20 ROTARY AUTOMATIC CUTTER


AMERICAN DISINTEGRATOR

AMERICAN CLAY CAR


AMERICAN 9-FOOT DRY PAN

AMERICAN No. 233 AUGER MACHINE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Had the allies and the Kaiser figured it out ahead of time the present daily sacrifice would possibly have been prevented. Preparedness is a great thing. Loss prevention is another.

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We can make you prepared to prevent losses.

In the manufacture of your product we can give you the shortest cut to cost economy.

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We are conducting a war against the cost of production and want to show you where the American Machinery and the Haigh Continuous Kiln will win the battle for you.

Your inquiries for large or small wants will be given immediate and careful attention.

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HAIGH CONTINUOUS KILN

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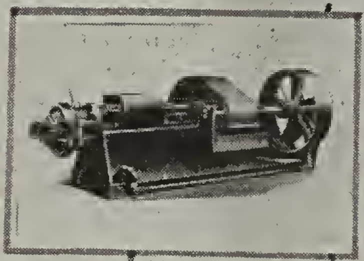
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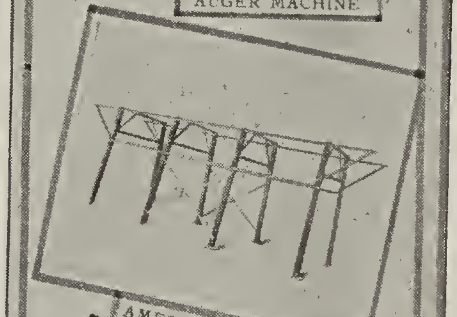
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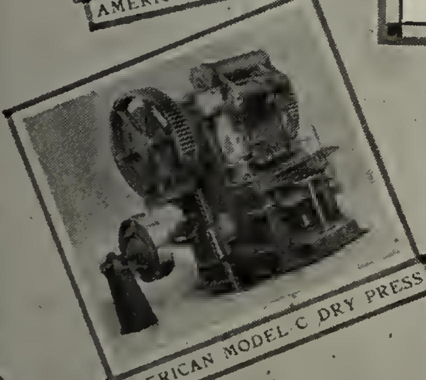
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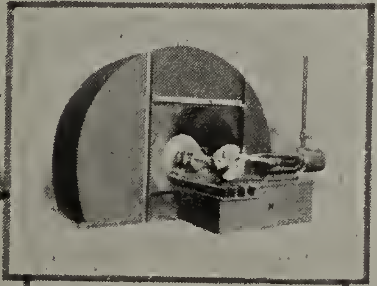
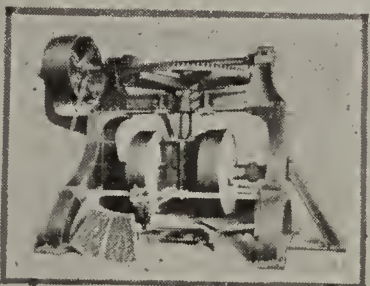
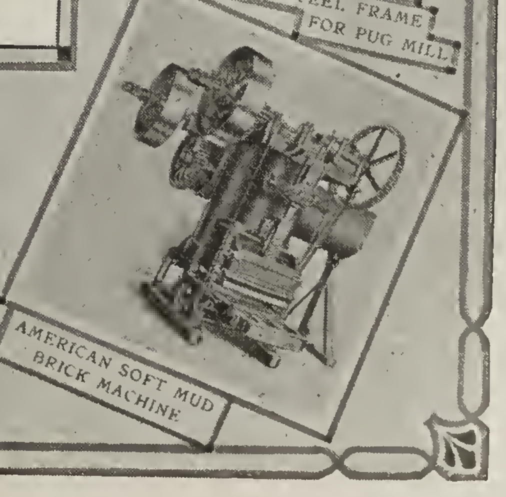

AMERICAN WASTE HEAT FAN


AMERICAN No. 57 DRY PAN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Chillicothe Street
Portsmouth, Ohio
Pitch filled
1895

Main Street
Butler, Pa.
Paved
1891

Euclid Avenue
Cleveland, Ohio
Laid
1883 or 1884

East Rich Street
Columbus, Ohio
Pitch filler finished June 22,
1892

West Fourth Street
Newport, Ky.
Paved
1894

Barrett's PAVING PITCH

It lasts as long as the pavement

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It still clings to the blocks in every kind of weather regardless of the expansion or contraction.

Chemically the pitch in these joints is just as good as it ever was and if it could be taken out, it could be melted up and used over again in a new pavement.

In none of these old pavements is to be found a single crack, for every joint is an expansion joint.

The pavements are much quieter than if the joints were filled with cement and the footing for horses is better because a shallow groove is left at the top of each joint.

From the viewpoints of satisfaction and economy, no other filler is equal to Barrett's Paving Pitch.

We point to the illustrations herewith, and to many other streets all over the country with similar records of efficiency, to demonstrate the truthfulness of our claims.

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Lakewood Engineering Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Fernholtz Brick Machy. Co.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chase Fdry. & Mfg. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link-Belt Co.
Schofield-Burkett Cons. Co.
Stevenson Co., The.
Weller Mfg. Co.

Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Stevenson Co.
Toronto Fdry. & Machine Co.,

Shovels (Hand).
Ceramic Supply & Cons. Co.

Silent Chain Drives.
Link-Belt Co.

Soft Mud Brick Machines.
American Clay Machy. Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Manufacturers Equipment Co.
Wallace Mfg. Co.

Steamers (Clay).
American Clay Machy. Co.
Schaffer Eng. & Eq. Co.

Steam Separators.
Canton Grate Co.

Steam Shovels.
American Clay Machy. Co.
Marion Steam Shovel Co.
Thew Auto Shovel Co.

Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.

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Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

Ties (Steel) and Tie Plates.
Cincinnati Frog & Switch Co.

Steel Towers.
Caldwell Co., W. E.

Supplies.
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Atlas Car & Mfg. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
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Manufacturers Equipment Co.
Steele & Sons. J. C.
Stevenson Co., The.
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Wallace Mfg. Co.
Weller Mfg. Co.

Tanks.
Caldwell Co., W. E.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Manufacturers Equipment Co
Standard Dry Kiln Co.

Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
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Fate Co., The J. D.
Freese & Co., E. M.
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Steele & Sons, J. C.
Toronto Fdry. & Machine Co.,
Wallace Mfg. Co.

Time Clocks.
Hardinge Bros., Inc.

Tramways.
Ambursen Co.

Unloading Devices for Pans.
American Clay Machy. Co.
Bonnot Co.
Clearfield Machine Shops.
Toronto Fdry. & Machine Co.,

Watchman's Clocks.
Hardinge Bros., Inc.

Waterproofing.
Johns-Manville Co., H. W.

Water Tanks.
Caldwell Co., W. E.

Wheelbarrows.
(See Barrows and Trucks.)

Winding Drums.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, F. & S. Co.
Weller Mfg. Co.

Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

Wrenches.
Hess Steel Co.

All Kinds of Clays Easy For The Standard Drier

TO UNDERSTAND fully how successfully clays of *every variety* can be handled in a drier, you must see the splendid results produced by The Standard Natural Draft System.

Control of the drying elements is perfect—and *easy*. There's nothing complicated about The Standard Drier. Anyone can look after it. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

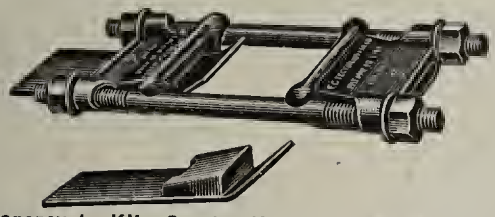
¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

ECTMCo

Tecktonius Kiln Band Fastener



Gives Permanency to Kiln Construction. Insures Safety to Kiln Contents.

WROUGHT IRON BANDS

Wall and Crown Guides
Crown Covers and Ventilators

Write for
Discount and Net Prices

E. C. Tecktonius Mfg. Co.
Racine Junction, Wis., U. S. A.

Up-and-Down Draft
Tecktonius-Vogt
Round Kiln

General Traffic Association, Inc., Woodward Building
WASHINGTON, D. C.

Composed of expert traffic men and attorneys who practice before the Interstate Commerce Commission, the various State Commissions and all the Courts.

Freight bills audited, claims for overcharge and loss and damage collected, cases prepared and handled before the Interstate Commerce Commission, where shippers and receivers feel that existing rates are unjust, excessive, inequitable, unreasonable or discriminatory, or will assist attorneys or traffic organizations in the preparation of cases. Correspondence solicited.

Build with Brick

Sheet Steel Signs
$5.00 per hundred

Write for prices of signs with your name imprinted

BRICK & CLAY RECORD
445 Plymouth Ct., Chicago

Build with Brick

THE STANDARD RATTLER FOR THE TESTING OF PAVING BRICK

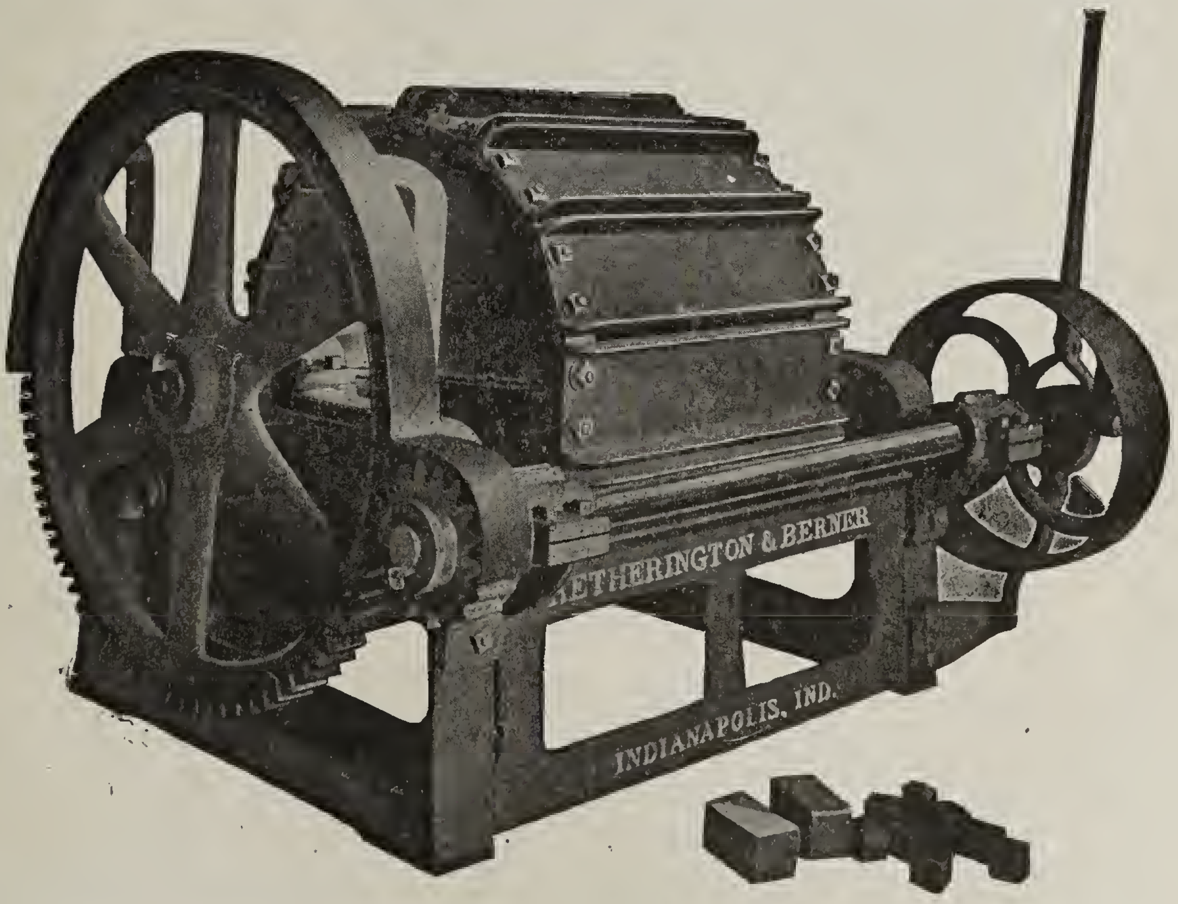
As we now build this machine it embodies all of the

LATEST IMPROVEMENTS

and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

For descriptive circular and prices address

HETHERINGTON & BERNER
INDIANAPOLIS, INDIANA

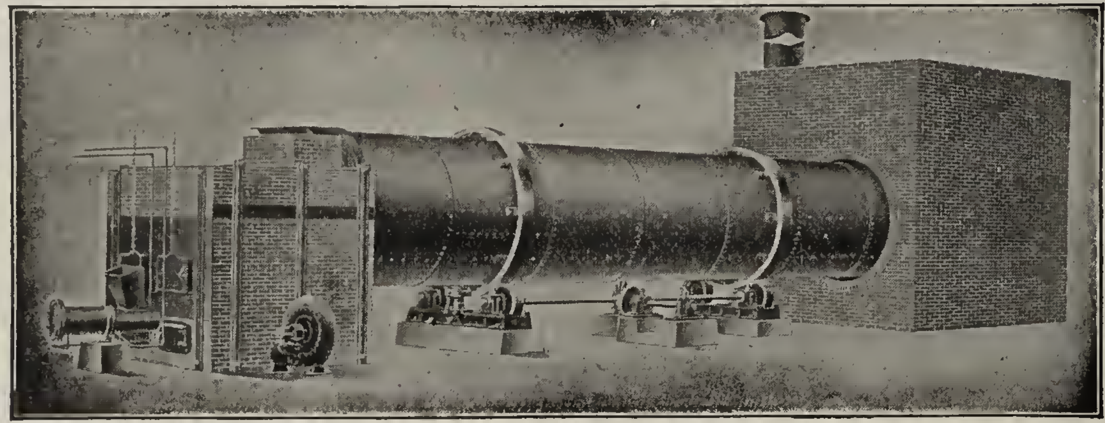


THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST

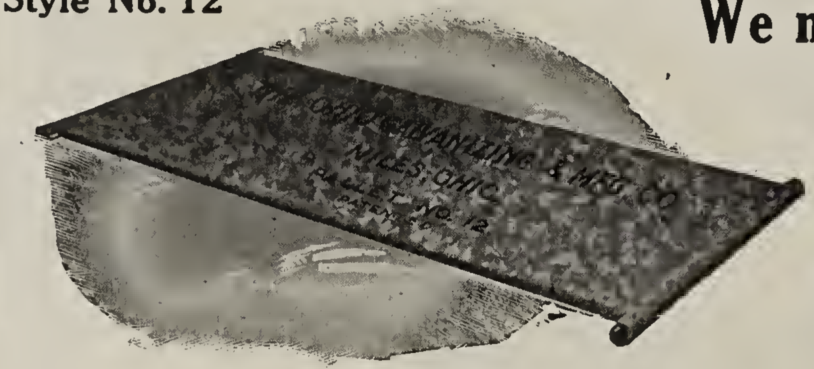
YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 500 1000	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 500 1000	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 500 1000	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

DOES IT PAY TO HAUL DEAD LOAD?

Although clearly set forth in Bulletin B, we find that the following point needs the emphasis of a special advertisement.

In the old type of tramway with underhung buckets the dead weight of the buckets alone is usually about equal to the live weight transported. But there are as many buckets returning empty as are going out loaded; hence there is twice as much dead weight being moved at any moment **in the cars alone,** exclusive of hauling cable, as there is useful live weight. Each Lawson car, on the other hand, will transport a live load about six times its own dead weight. Allowing for the empties returning, this means that there is three times as much live weight moving at any moment as there is dead weight to carry it.

What We Do It With

Put in another form, this means that in the bucket tramways the dead load is **double the live load,** and in the Lawson tramway is **one-half the live load**—a ratio in favor of the Lawson transportation of 4 to 1. Moreover, this dead load, like "the poor, we have always with us," whether the tramway is running to capacity or not.

This is a bad matter, but worse remains, since the weight of the haul rope itself is usually twice as great for a bucket tramway as for the Lawson Tramway—and this again is non-paying dead load. All the above bears directly on the earning capacity. An amplification of this subject can be found in our Bulletin B under the heading of POWER REQUIRED.

Respectfully submitted,

AMBURSEN COMPANY (Tramway Department) **61 Broadway, New York**

Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

HERAEUS Le Chatelier
PYROMETER

"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular coordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermocouples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

We Supply Pyrometer Installations

"MADE FOR YOU" not "MADE TO DO"

Let Us Figure on Your Requirements

CHARLES ENGELHARD 30 Church Street
NEW YORK

Come to the

TENTH ANNUAL CONVENTION

of the Federation of

TRADE PRESS ASSOCIATIONS

THE BELLEVUE-STRATFORD HOTEL

PHILADELPHIA

SEPT. 7-8-9, 1915

Come to *give* and to *get*. Come in confidence that the experience will prove of daily benefit in your business, whether you are a

Manufacturer Sales Manager Executive
Advertiser, Advertising Manager, Editor or Publisher

AT THIS convention you will discover a keynote of co-operation in the interest of higher ethics, greater efficiency, bigger growth. The reports, speeches and discussions will all pulsate with a big purpose that leads toward the development of bigger men as well as bigger business.

THE FEDERATION OF TRADE PRESS ASSOCIATIONS

—comprises 250 leading trade and technical journals—exists for the purpose of developing and encouraging higher and still higher ethical standards in publishing, advertising and general business practice — represents over $40,000,000 invested capital.

—reaches through its consistent publication, millions of business men!

THE FEDERATION OF TRADE PRESS ASSOCIATIONS

—includes in its membership publishers expending over $37,000,000 in salaries and wages.

—desires the individual interest and co-operation of every reader and advertiser.

—wants you to attend its annual gathering.

THE time you spend in attending the Convention will pay large dividends in broader perspective, increased enthusiasm, higher efficiency, fresh inspiration. For additional information write to

Bartley J. Doyle, Chairman Committee on Arrangements
512 Race Street, Philadelphia

THE FEDERATION OF TRADE PRESS ASSOCIATIONS

John Clyde Oswald, President
New York

A. A. Gray, Vice-President
Chicago

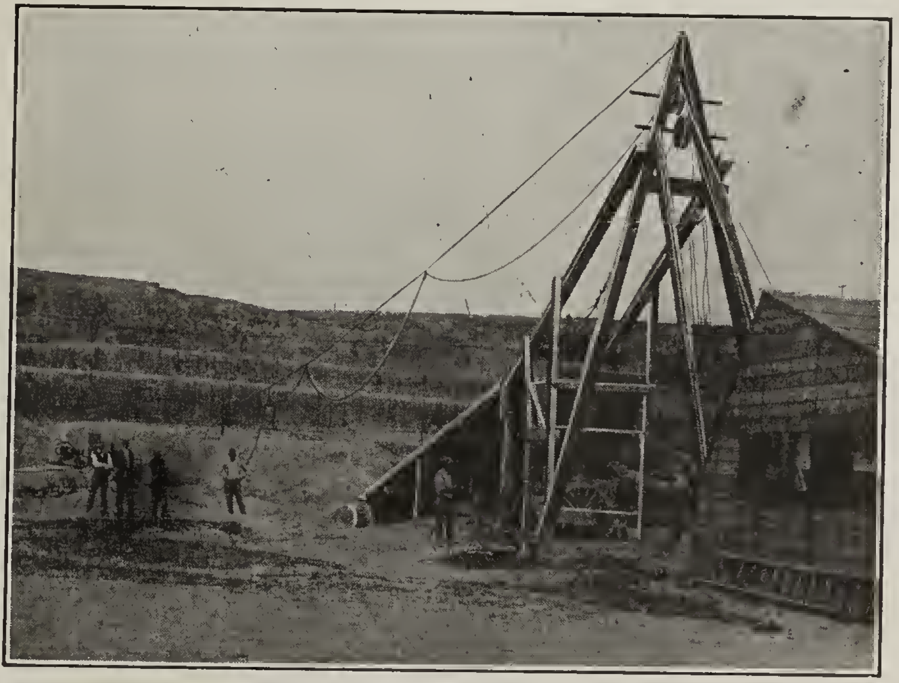
Grant Wright, Sec'y-Treasurer
Philadelphia

Every Stitch Counts

—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

Three Hundred Cubic Yards of Tough Clay in One Day



That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

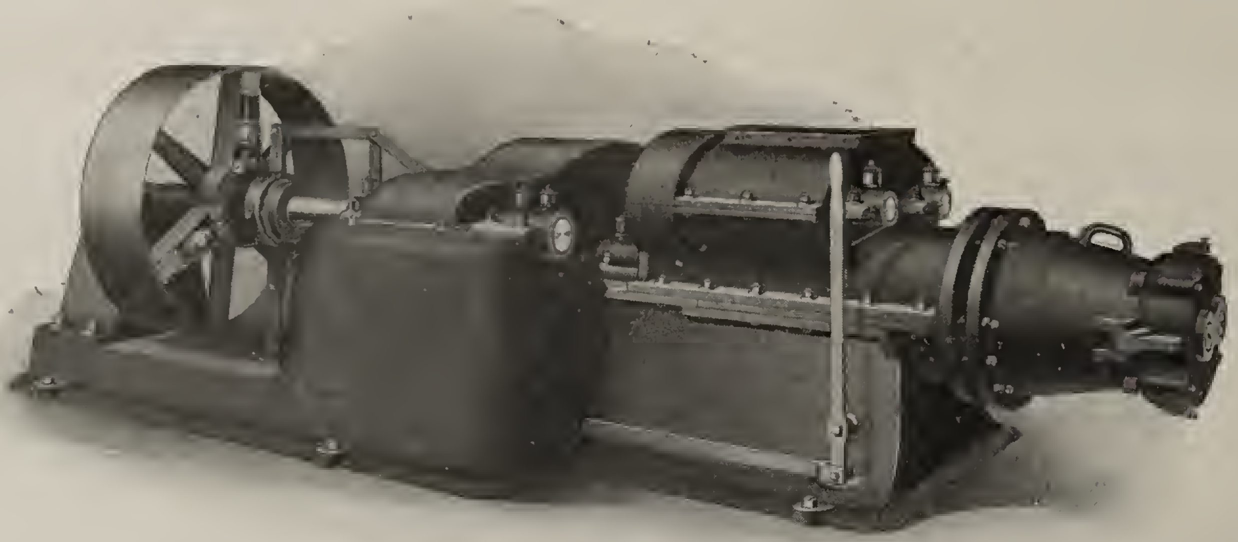
The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

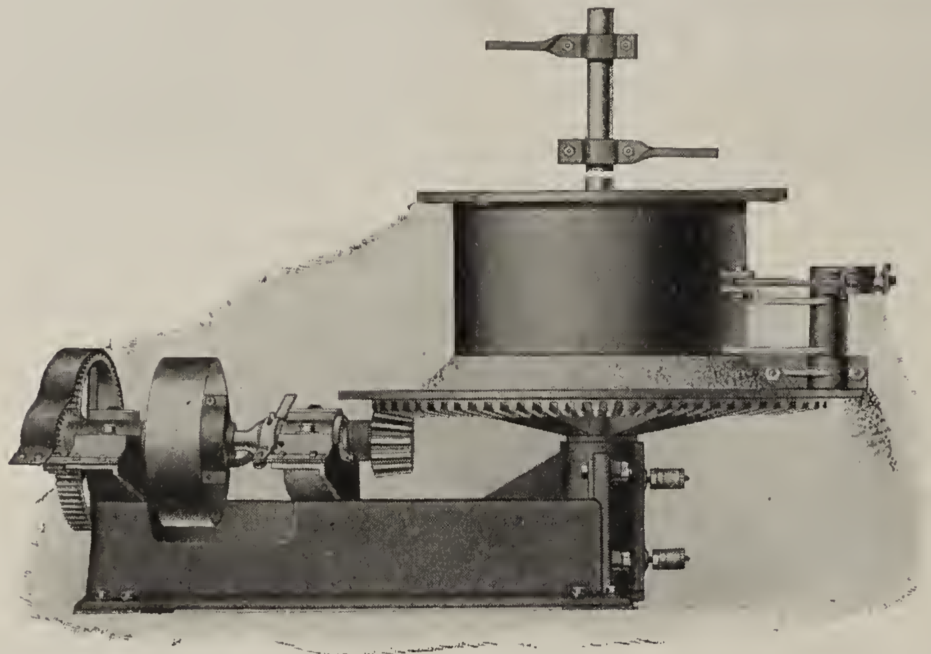
is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will **dig and deliver**—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

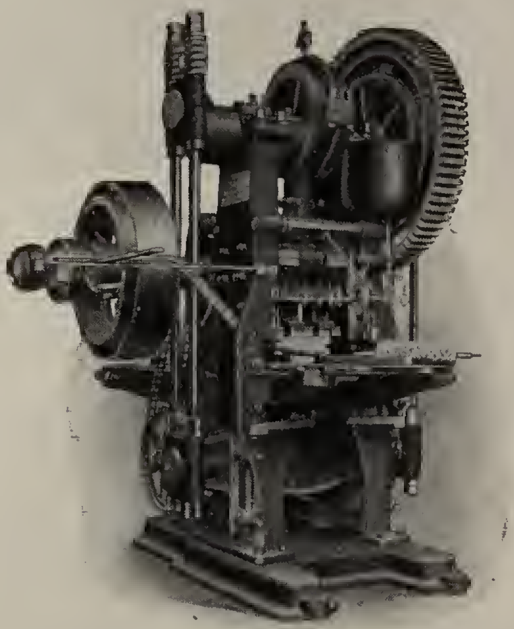
SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.



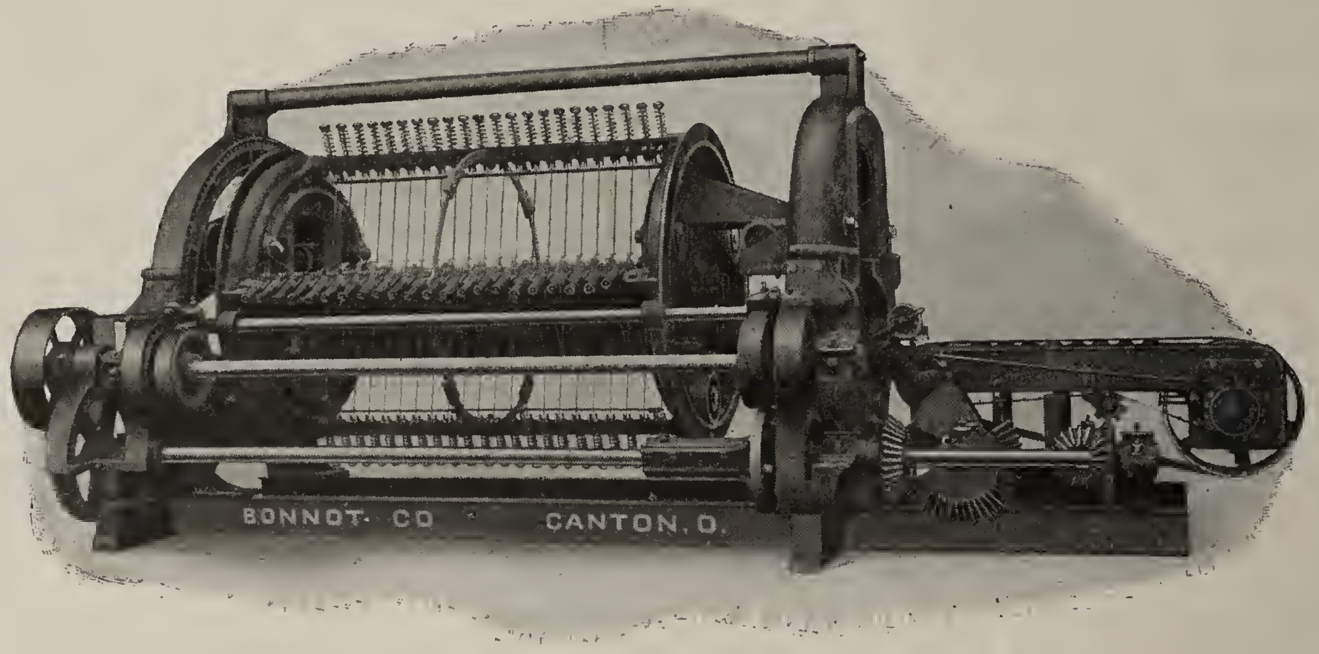
NO. 17 HOLLOW-WARE MACHINE, capacity 100-125 tons per day.



CLAY FEEDER



BONNOT REPRESS



ROTARY AUTOMATIC CUTTING TABLE

THE BONNOT COMPANY

CANTON, OHIO

909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

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Keller Brick Co., The, Cuyahoga Falls, O.	8

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Alton Brick Co., Alton, Ill.	4
Keller Brick Co., The, Cuyahoga Falls, O.	8
Metropolitan Paving Brick Co., Canton, O.	5

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Pittsburg Tile Mfg. Co., E. Liverpool, O.	7

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Trade Names Now in Use

on Face Brick and Other Clay Products

Consult this list before you adopt or create a name for your material and so avoid confusion and duplication. Many of the names have been registered in the U. S. Patent Office at Washington D. C., and your use of them constitutes an infringement.

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
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Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
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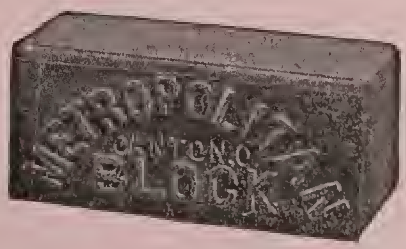

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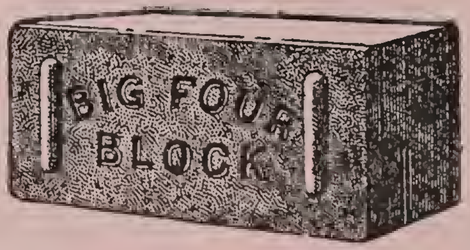

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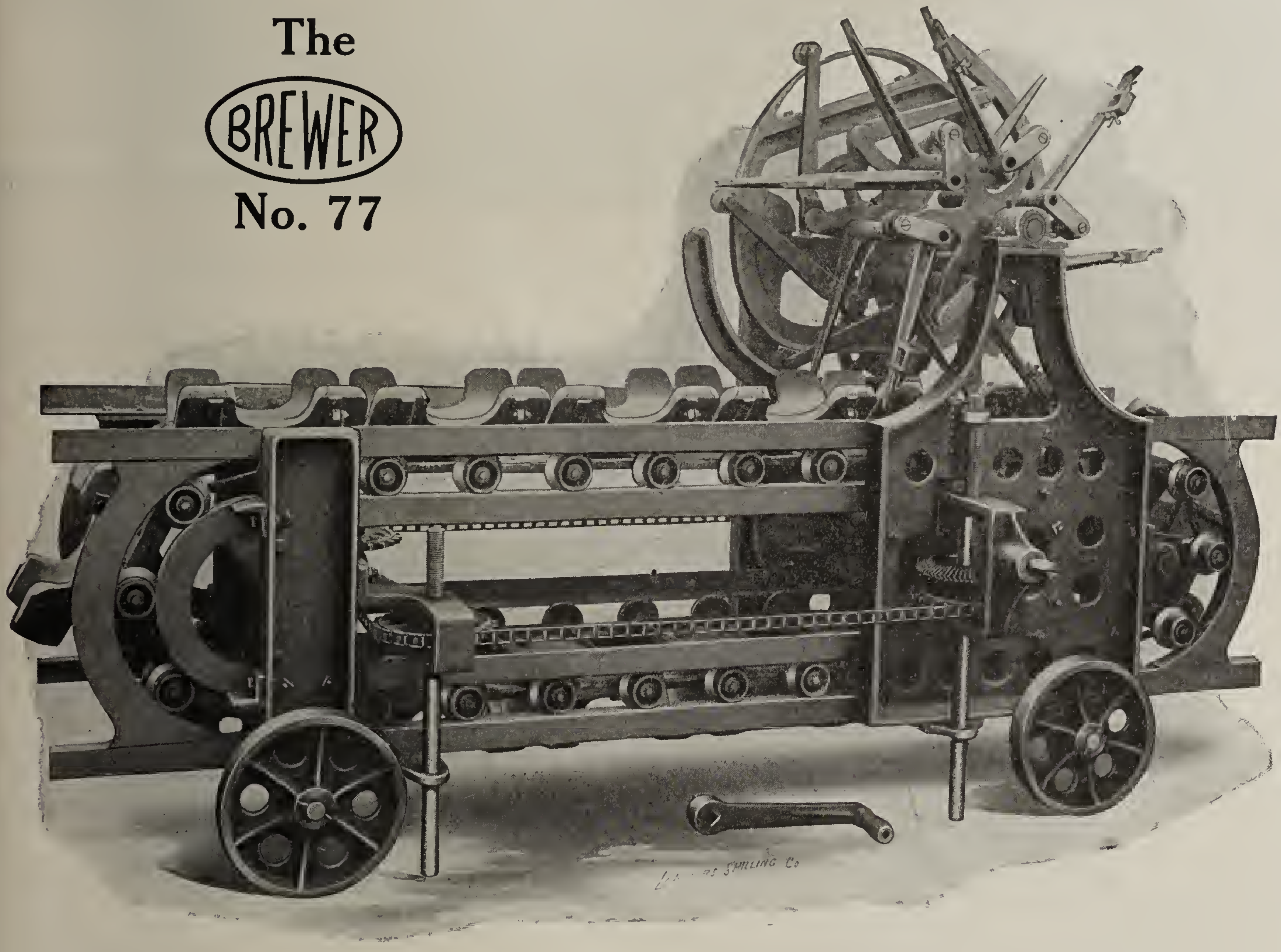

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Chapter VI	Architects' Tile Houses
Chapter VII	Building the Other Man's House
Chapter VIII	Floor Building, Sand Moulds, The T-Beam
Chapter IX	Tile in Stucco Surfaces
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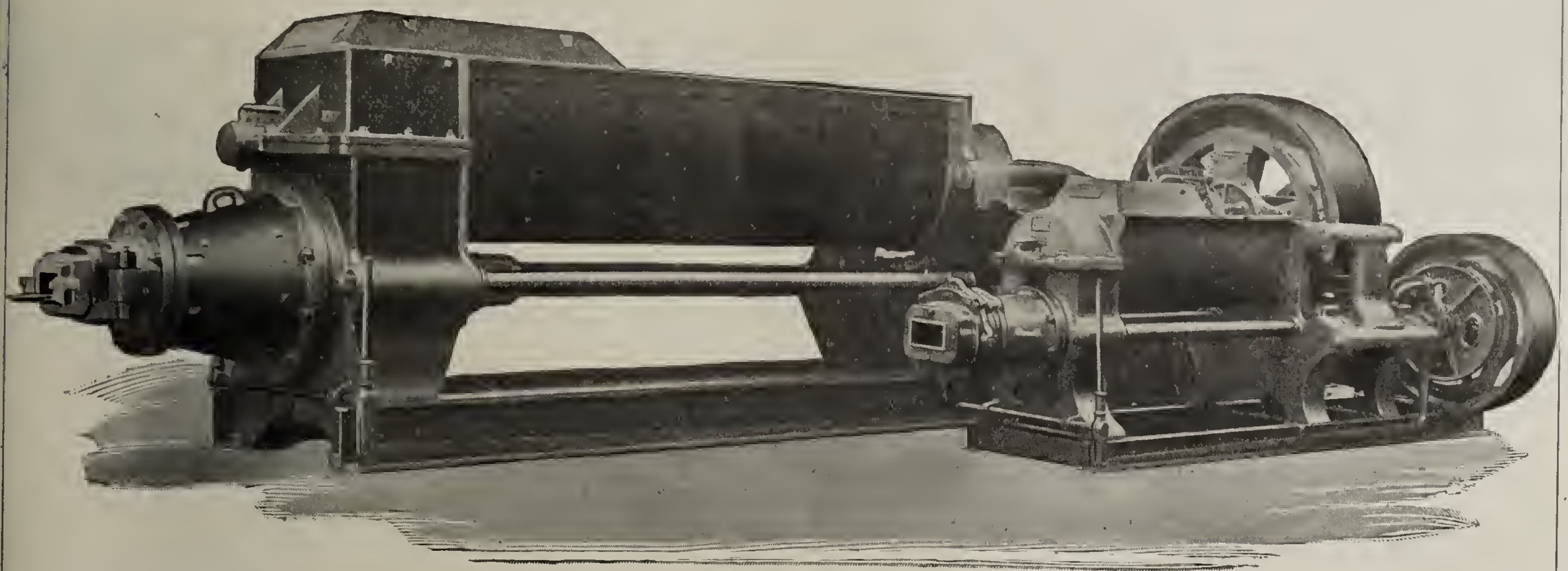

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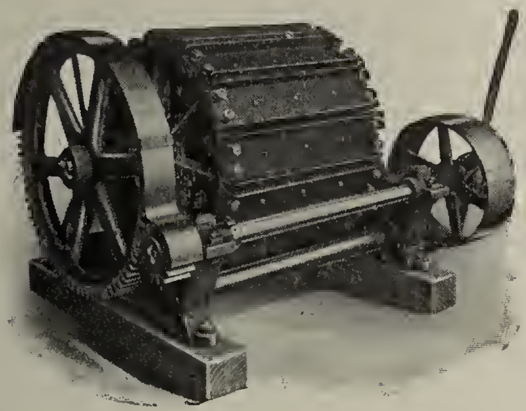

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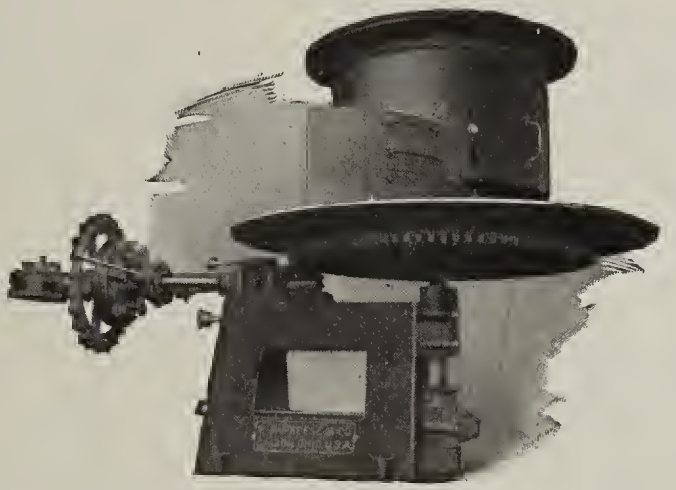

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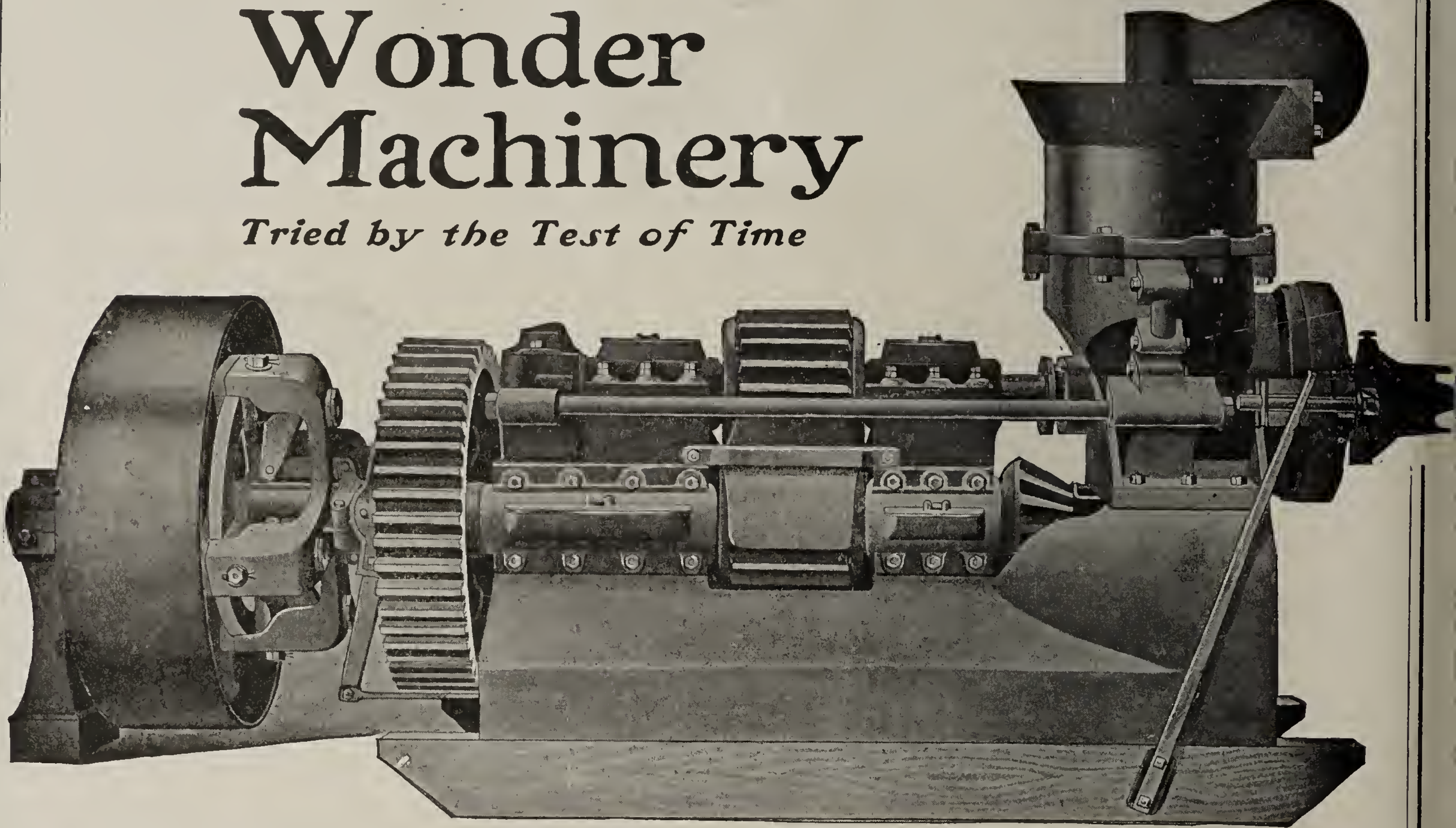

Brick, Tile and Hollow Block Machinery of every description. Granulators, Pug Mills, Disintegrators, Crushers, Cutters, Dry Pans, etc. Write for catalog

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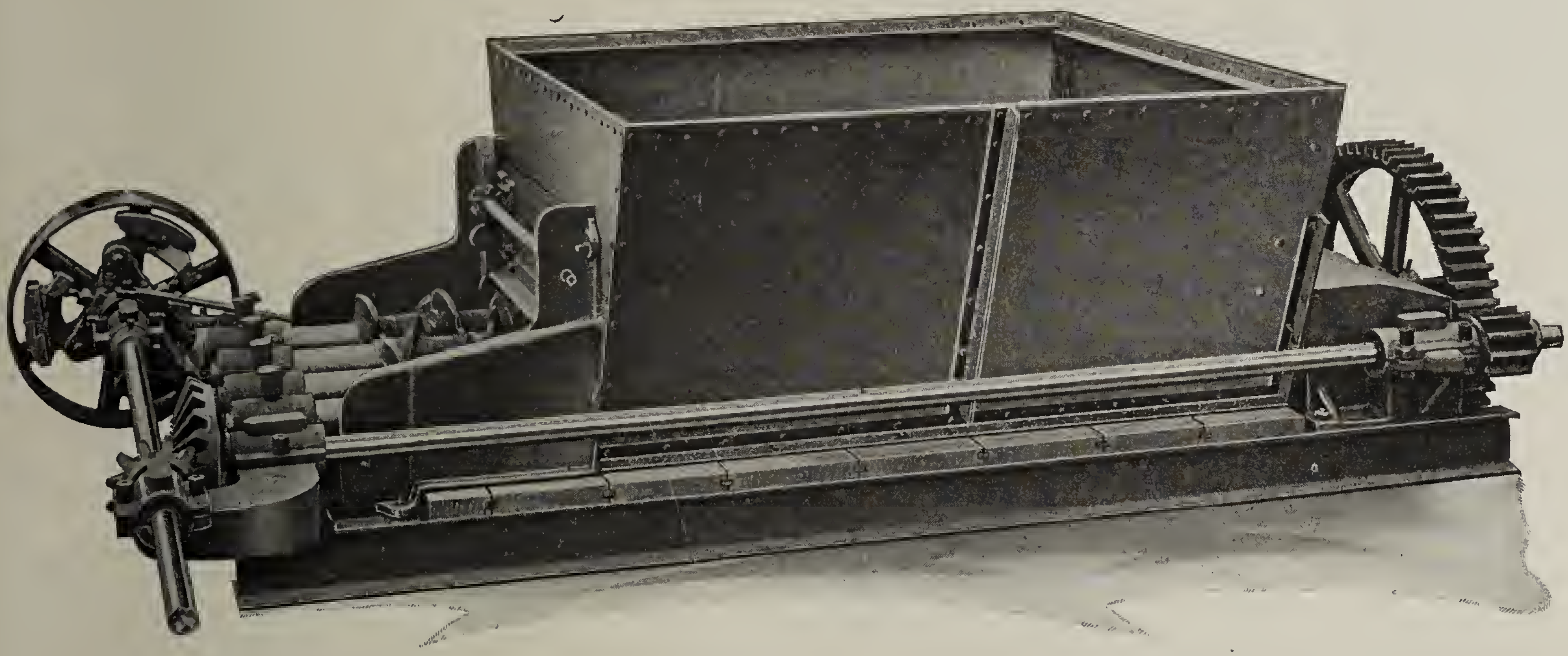

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FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

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BRICK AND TILE PLANT — Thoroughly equipped and up-to-date, with plenty of clay and railroad trackage in Southwestern Minnesota, with an undisputed territory of 100 miles on three lines of railroad. Will be for sale or lease this winter. For particulars address: 8-A, care of "Brick and Clay Record." 8-2

FOR SALE OR LEASE—Brick plant, capacity now 40,000 With addition to dryer can be increased to 100,000 capacity. Fine, inexhaustible shale; good coal can be secured from mine one-quarter of mile from plant. Located on railroad and river. Machinery in first-class condition. Address: 6-BC, care of "Brick and Clay Record." 6-2-2

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE AT A BARGAIN

Freese Brick Machine, Automatic cutting table, Blake jaw crusher 9x15 in., No. 3 Williams hammer crusher, Stevenson 8 ft. wet pan, 9 ft. dry pan, Thew steam shovel, style 0, Berg 4-mold dry press, pipe rack dryer, 32,000 brick capacity with pallets and cable conveyor complete, Raymond 2-mold power repress, corrugated conical roll crusher, Arnold-Creager and Martin A. brick machines, Raymond No. 3 hand repress, No. 20 American Clay Machy. Co. waste heat dryer fan. All of the above in fine running order. C. H. Horton Co., Painesville, Ohio. 8-1

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—Second-hand multigraph machine in first-class condition. Will make special time inducements. Address: 5-BP, care of "Brick and Clay Record." 5-2-1.

FOR SALE—Stockbridge crank shaper. New and not used. This is a 24-inch shaper with back gear, and patent two-piece crank with quick return motion. Price paid, $625.00, and must be sold. Address: 6-C, care of "Brick and Clay Record." 6-TF

FOR SALE—One 4-mold Penfield dry press in good condition. Address: Hydraulic-Press Brick Co., 403 Rialto Bldg., Kansas City, Mo.

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—Used auger brick machine, 25,000 capacity. Just overhauled and in splendid condition Address: 8-H, care of "Brick and Clay Record." 8-1

FOR SALE—One Monarch No. 6 soft-mud machine and sander. This machine made less than one million brick. We bought this machine for experimental purposes and have no further use for a soft-mud machine. Address: 8-X, care of "Brick and Clay Record." 8-2

FOR SALE—1 No. 247 American Clay Machinery Company feeder with forge steel shafts and inserted knives and steel gearing with 36x10 inch F. C. pulley. Used but little and practically as good as new. Address: 7-BD, care of "Brick and Clay Record." 7-2-2

FOR SALE CHEAP—Chambers No. 5 brick cutter, side cut, 24 ft. offbearing belt. Used but few months, absolutely good as new. Standard Brick Mfg. Co., No. 8 Furniture Bldg., Evansville, Ind. 7-2-3

FOR SALE—One Stevenson 9 ft. iron frame dry pan, latest model, and guaranteed in first-class condition, ready for immediate delivery. Address: J. S. Miller, Bolivar, Pa. 8-1

FOR SALE CHEAP—125 h. p. boiler, 100 h. p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address: J. F. Vogan, Franklin, Pa. 4-TF

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAYWORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

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If so, keep your eye on the Classified Department. It offers you constant opportunities of cheaply purchasing used machinery and equipment.

Brick and Clay Record

Brick and Clay Record Classified Ads Are Result Producers

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

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Refractories and Furnaces

By F. T. HARVARD, 356 pages, 6x9, fully illus., $4.00 (17s) net, postpaid.
Presents: I. Material collected during the author's activities as Superintendent of furnace operations in America, England and Germany.
II. A digest of the available information on the properties and preparation, sources and processes of manufacture of the materials.
III. A comprehensive study of the physical and chemical properties of furnace materials.

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Brick and Clay Record
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all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. Immediate shipment from stock.

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All sections, New and Relaying, in stock for immediate shipment.
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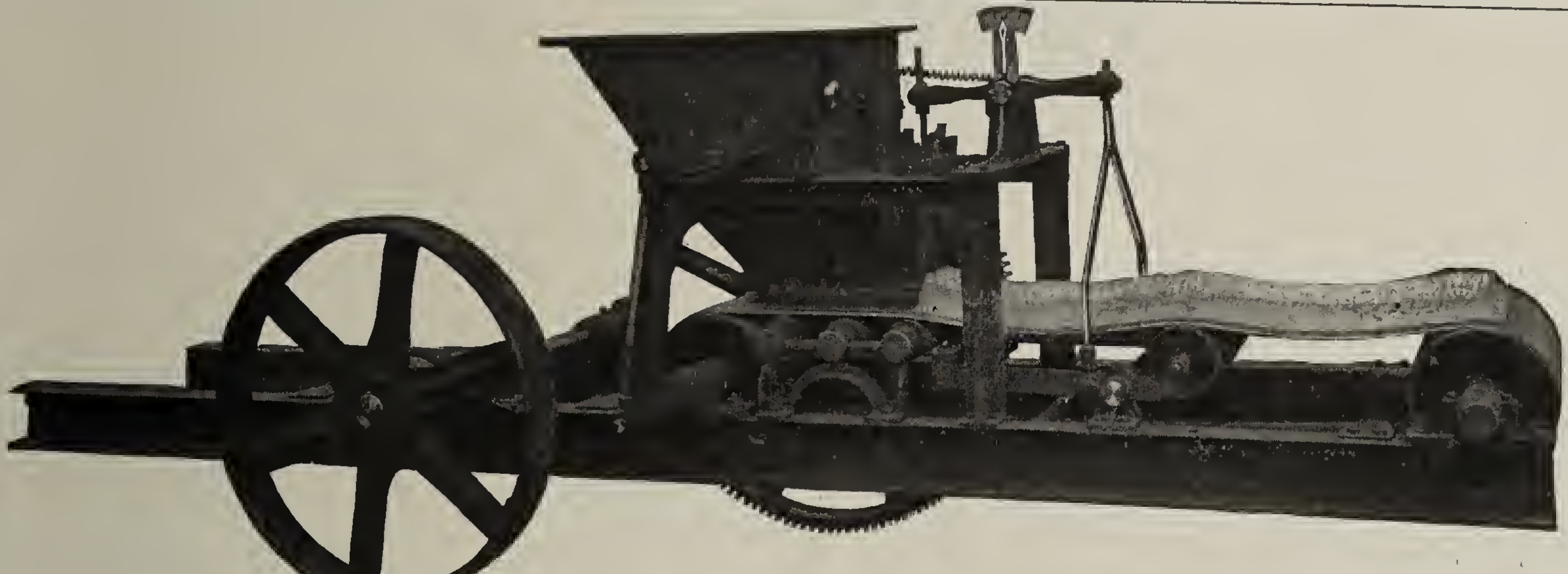

The Schaffer Poidometer—*What it will do*

It Will
—unite any number of materials in correct proportion.
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—deliver water at a predetermined number of pints per minute.
—produce a clay column evenly tempered, of absolute uniformity.
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—produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

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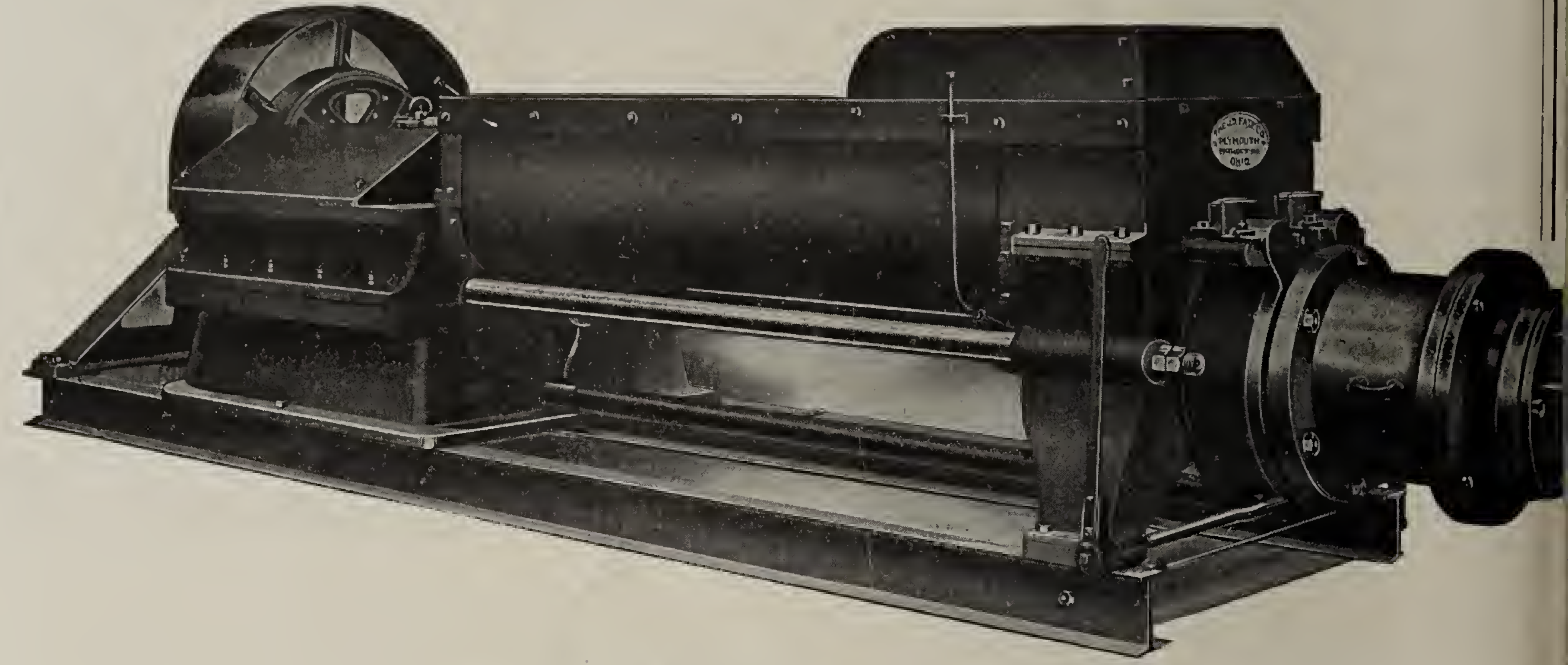
Quality hinges on two things—mechanical perfection and the best material.

These factors enter into the product of the House of Fate.



SPECIAL PREMIER HOLLOW WARE MACHINE

The Special Premier has met some very Formidable Foes in the way of Stubborn Working Clays and Fought vs. Great Odds, since it Championed the Cause of the Clay Worker in his attempt to produce Merchantable Hollow Ware at a living Profit. However, it still stands today as the "Premier" of Hollow Ware Machines and ever ready to continue its Campaign for the Relief of the Distracted Clay Worker.

It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clay Working Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

The J. D. Fate Company Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgeway, Representative
Manufacturers Equipment Company, Dayton, Ohio, Sales Agents

The Fate Quality

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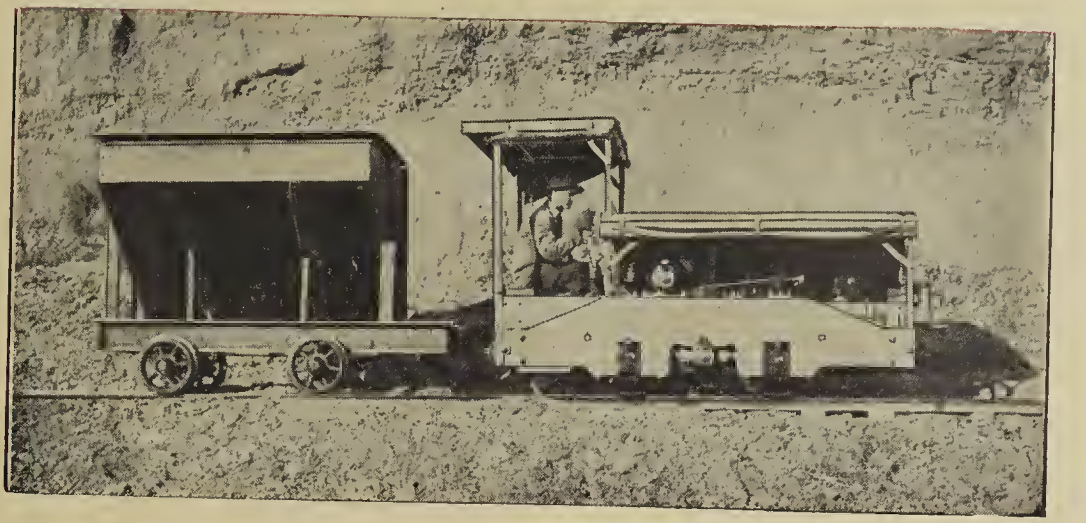

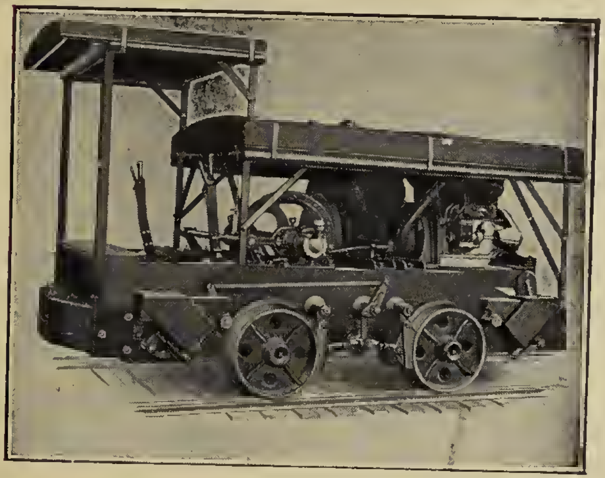

Equipped with Continental 4-Cylinder Motor, Thermo-Syphon Cooled, Schebler Carburetor, Bosch High Tension Magneto, Hyatt Roller and New Departure Ball Bearings, Brakes and Sand on All Four Wheels.

Any Gauge — 20-inch to Standard.

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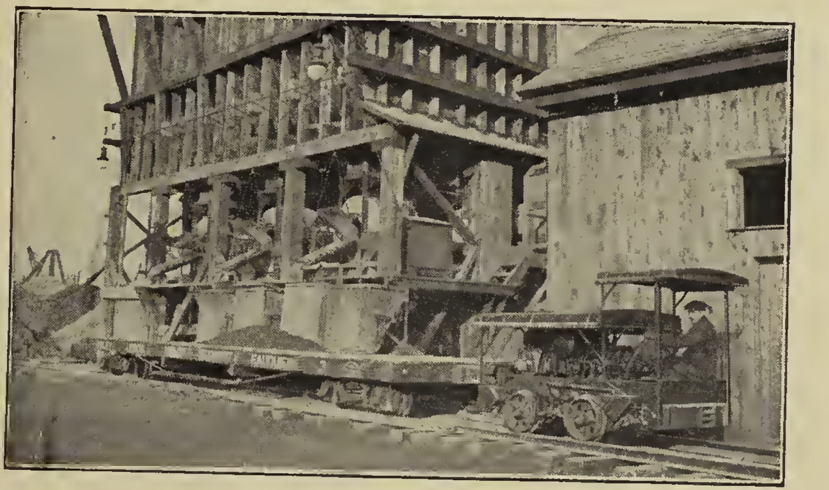

The above views tell in a pictorial way some of the work our Gasoline Locomotives are doing—in a most satisfactory manner—from Long Island to Honolulu, from Nova Scotia to Texas, and at a surprisingly low cost for operation and maintenance.

Let us send you our descriptive catalog and tell you of an eight-year-old boy who runs one.

The J. D. Fate Company - - Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office, Woolworth Bldg., New York City, Jas. A. Ridgeway, Representative

JOHNS-MANVILLE SERVICE
COVERS THE CONTINENT

A Treatment for Kiln Masonry that prolongs its life by preventing Fire Brick disintegration

J-M Treatment for Brick and Pottery Kilns

The **J-M Treatment** for brick and pottery kiln masonry has a two-fold function:

First, preservation of the Fire Brick edges by the use of **J-M No. 31 High Temperature Cement,** which is used as a mortar between Fire Brick courses. And—secondly, to protect the completed masonry by painting it with **No. 32 High Temperature Cement** to insulate the walls against uneven absorption of heat and thus preserve the Fire Brick faces from cracking, spawling and finally disintegrating.

No. 31 High Temperature Cement protects the Fire Brick edges from the action of the flames and cannot be dislodged from between the Fire Brick because it vitrifies at a comparatively low temperature and gains mechanical strength up to 3100 deg. F., which is its fusing point.

J-M No. 32 High Temperature Cement may be brushed on with an ordinary brush. It is supplied in powdered form and mixed with water for application. It is an ideal material for painting Pottery Saggers. It will preserve them against cracking and furthermore when so treated they are non-porous to kiln gases.

Information and prices will be furnished by any J-M Branch listed below.

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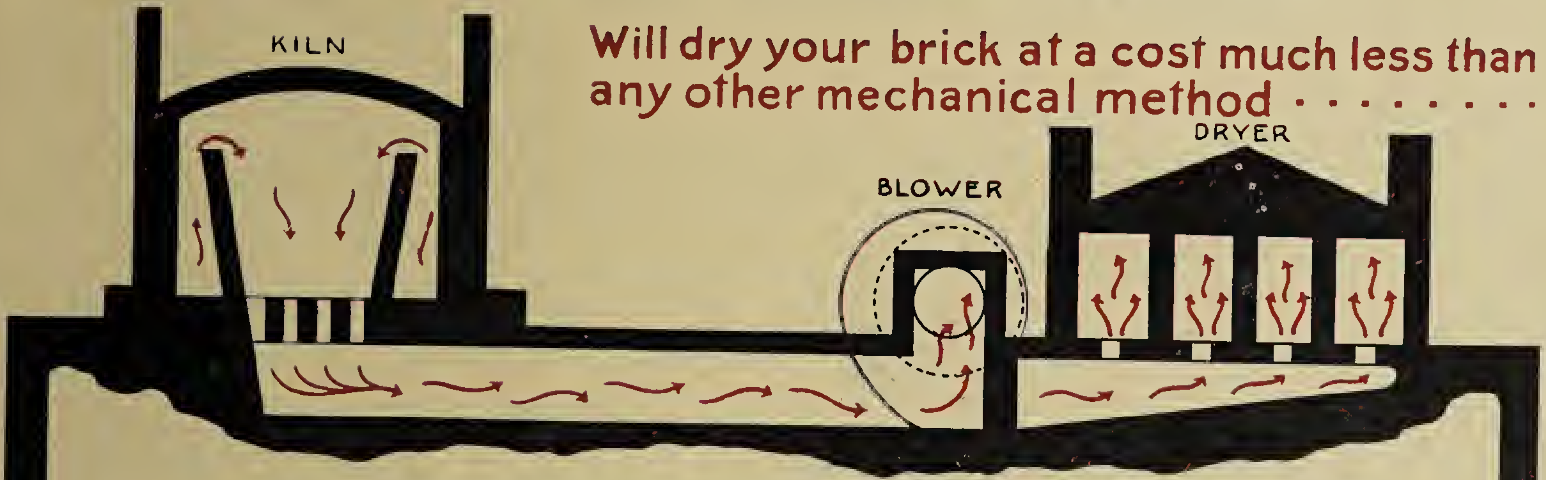
THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED, Toronto, Winnipeg, Montreal, Vancouver.

AUG 20 1915

BRICK and CLAY RECORD

The Sirocco TRADE MARK Waste Heat System For Brick Plants

Will dry your brick at a cost much less than any other mechanical method . . . .



THE ideal way to dry brick and other clay ware, is to utilize the heat from the cooling kilns. But this method is made most efficient only through the installation of a fan system that will handle the MOST air at the LEAST expense. Scores of brick plants have proven that the Sirocco Fans meet this requirement in a more efficient manner than any other mechanical system—and we seek but an opportunity to prove this to YOU. Our Brick Engineering Department will submit a lay-out to meet YOUR requirements if you will ask us.

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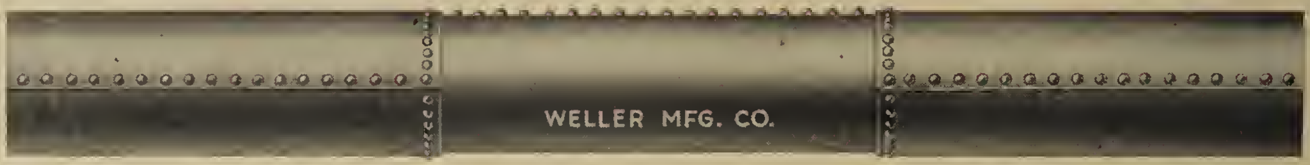
Vol. XLVII, No. 4 Chicago August 17, 1915

WELLER-MADE

STEEL SPOUTS AND FORMS

There are many places around clay working plants where different materials must be spouted in various directions.

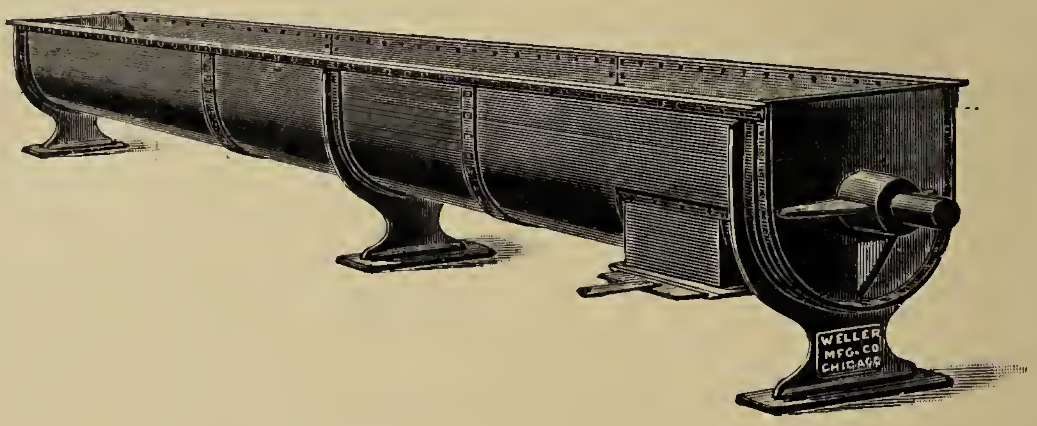


Plain Riveted Steel Spouts, Any Diameter and Guage of Metal up to ¼-inch.

Sometimes plain straight spouts will do the work. Other times the material must flow around corners and at odd angles.

Odd Shaped Special Spouting Ready for Shipment in Our Shops.

No matter what your requirements in the line of standard or special steel work of this kind if you want the best, we can fix you up.



Spiral Conveyor Boxes and Forms.

On a straight price basis we may not be the lowest, but on the wearing qualities of the metal, the neat superior finish and the general satisfactory service and treatment, there is positively no one who will give you more for your money.

We Know How to and Do Build Good

Elevating, Conveying and Power Transmitting Machinery

WELLER MFG. CO., - - Chicago

SAY "I SAW IT IN BRICK AND CLAY RECORD"

AUG 20 1915

How Barnes Helped Foster

"Hello Barnes. How's the Clay-working business"?

"Well! Well! If it isn't my old friend Foster. What brings you down this way?"

"Barnes, to make a long story short. I heard you were a success as a clay-worker, and as we are very close friends, I came out to see you and have you tell me how you do it.

"We are about to build a yard *down our way, and I am making a trip to various plants to get some ideas".*

"Have you had your material tested?"

"Yes, in a general way."

"Did you secure any data of benefit to you on the plants you visited as far as you went?"

"Only in this way. Every clay-worker seems to have his own problem to solve, and what is suitable for one is unsuited to another".

"Foster, you struck the keynote just now.

"Let me give you some advice.

"When we started here, we were in just the same position you are.

"We visited and compared, and returned home with doubts in our minds. Things which we saw were not conclusive and we were unable to separate the wheat from the chaff.

"We learned of a man in Chicago named Trautwein, and had him come down to help us.

"He tested our material for us in an impartial manner.

"He studied our conditions of supply and demand, and first decided whether it would be profitable for us to build a yard at all.

"He then assisted us in purchasing the most desirable equipment, dryers and kilns and, believe me, he went into this thoroughly.

"He designed our plant for us, drawing on his extensive and varied experience, so that today we have a model plant.

"He furnished our dryer equipment, and there is none better on the market.

"Foster, when you get home, you telegraph to J. O. Trautwein, President of the Trautwein Dryer & Engineering Co., 417 So. Dearborn St., Chicago, to come down to your site. Tell him what is on your mind.

"If he doesn't start you off right, nobody can. He is the best posted man I know on clayworking plants and an authority on this subject.

"We owe our success to his careful judgment and experience."

"I certainly want to thank you Barnes. I want to meet that man. Haven't you a telegraph station here?"

Service to Clayworkers

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"In the Field of Observation Chance Favors Only Those Who Are Prepared"

When Pasteur, the eminent scientist, uttered those words little did he know what portent they would have in the affairs of the world in the first quarter of the twentieth century. But those of us who are living in this age have had the force of this thought brought home to us since that memorable August first, Nineteen Fourteen.

Preparedness—that's the big idea. And its just as necessary in affairs of business as in affairs of state. No matter how good you know your product is, you must recognize Competition—you must always be prepared to meet it and to give earnest, though friendly combat.

There's only one way in which you as a manufacturer of clay products can be prepared, and that is to see that your equipment is such as enables you to make at least as good a product as anyone else and at as low a cost. Then, too, you must not neglect to study the principles and practice of salesmanship so as to convince your prospects that they can never be happy or satisfied unless they have your product.

The man who is prepared is the one who studies the Advertising, as well as the Editorial columns of "Brick and Clay Record." He at least finds out what new machinery and devices are offered to help him make a better product at a lower cost of manufacture—then he uses his best judgment in choosing what helps him most, for "Chance favors only those who are prepared."

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SAY I SAW IT IN
BRICK AND CLAY RECORD

LEVIATHAN BELTING

Main Belting Company

Manufacturers and Engineers

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Main Belting Co. of Canada, Ltd.

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Toronto

Send for Booklet No. 2 on Conveying

SAY "I SAW IT IN" BRICK AND CLAY RECORD

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Bricks and Tiles (Dobson)	$1.20
Brick Drying (English Edition)	$1.00
Brick Houses and How to Build Them (Radford)	$1.00
Bricklaying, Rudiments of Practical (Hammond)	60c
Bricklaying System (Gilbreth)	$3.00
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Brickwork and Masonry (Mitchell)	$3.00
Cement, Concrete and Bricks (Searle)	$3.00
Clays: Their Occurrence, Properties and Uses (Ries)	$5.00
Clay Glazes and Enamels (Griffen)	$5.00
Clays, Tables of Analyses (Crossley)	$2.00
Clayworker's Handbook (Searle)	$2.00
Economies in Brickyard Construction and Operation (Lovejoy)	$1.00
Effect of Heat Upon Clays (Bleininger)	$2.00
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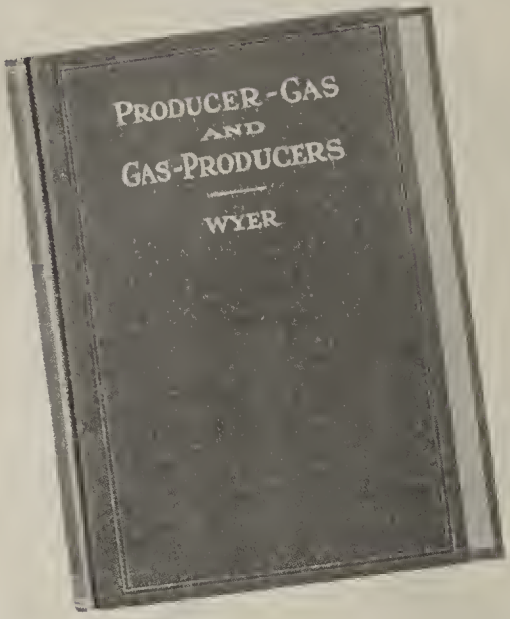
Hollow Tile House (Squiers)	$2.50
How to Analyze Clay (Ashby)	$1.00
How to Read Plans (Radford)	50c



308 Pages, 9x6, 113 Illus. - $4.00

THE GROWING USE of producer gas for industrial purposes has caused the writing of many volumes, none of which is more worthy than "A Treatise on Producer Gas and Gas Producers" by Samuel S. Wyer, M. E., author of "Catechism on Producer Gas." This book is now in its second impression from the second edition and has met with favorable comment here and abroad. Written in the latter part of 1905, it was brought down to date when the second edition went to press and recent discoveries and developments in the field of producer gas and gas producers have been treated.

One of the splendid points about this book is the series of notes which appears in the appendix, all of which are most interesting and valuable.

It is on sale, through "Brick and Clay Record's" Book Department, at $4.00, postage paid.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

Manufacture of Glazed Bricks (English Edition)	$2.50
Manufacture of Roofing Tile (Worcester)	75c
Manufacture of Roofing Tile (English Edition)	$1.00
Masonry (M. A. Howe)	$1.50
Modern Brickmaking (Searle)	$5.00
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Notes on Pottery Clays (Fairie)	$1.50
Observations on Pottery (Beckwith)	60c
One Hundred Bungalows (BBA)	50c
Pottery (Geo. J. Cox)	$1.25
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Producer Gas and Gas Producers (Wyer)	$4.00
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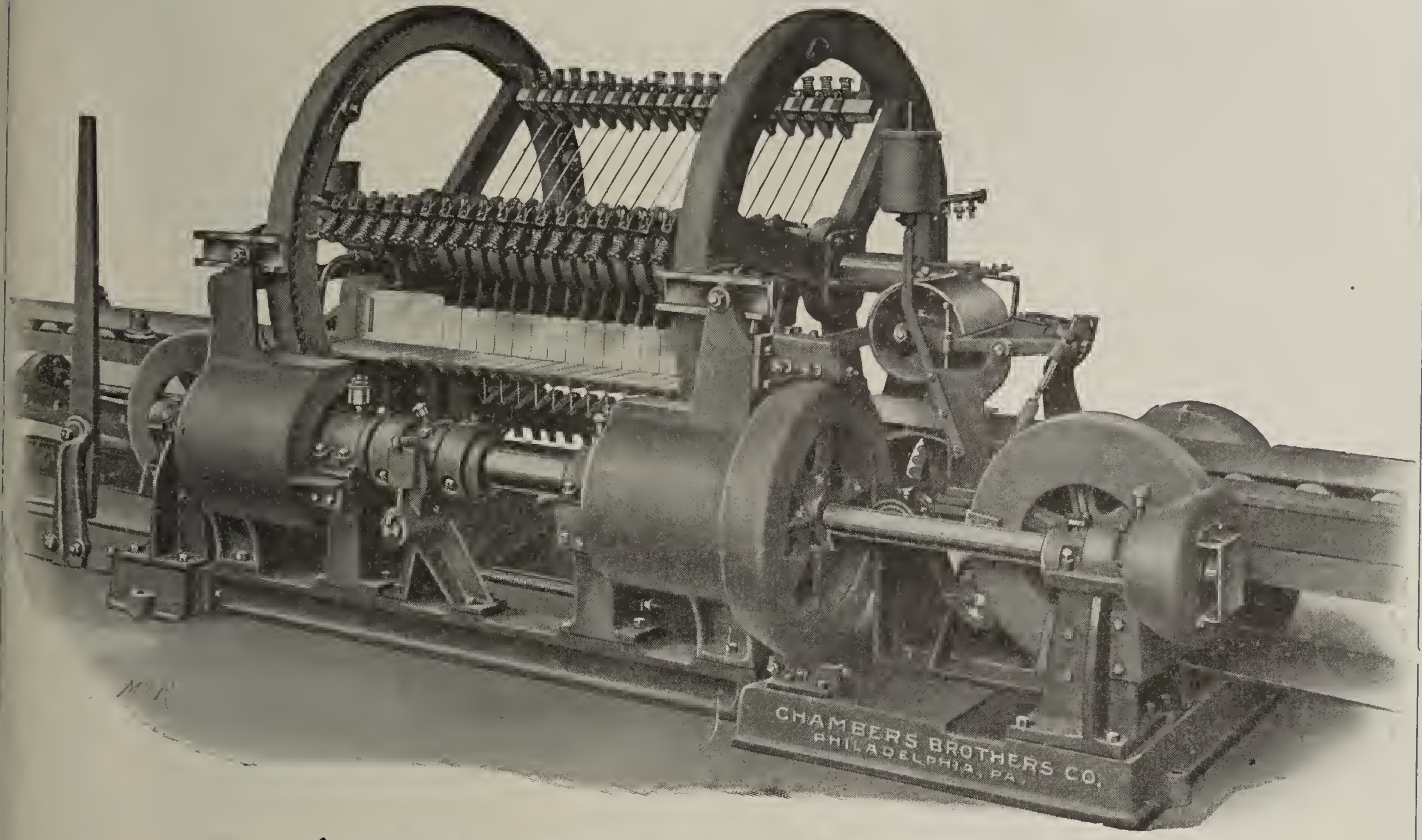
New Multiple Brick Cutter

That Does Not Swell the Clay Bar



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A frictional driven Cutter for Brick or Block that starts promptly and stops at completion of its stroke without noise or shock.

Entirely free from knocker clutches or similar throw out devices.

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

TWO CENTURIES have passed since the first brick manufacturing plant was established in America; since then the industry has grown until it is one of the most important in the amount invested, and in the value of its product.

Yet, if an engineer were to seek authentic information as to the exact sustaining power of a brick pier, he would not know where he could obtain it.

The strength of steel beams, girders and columns has been calculated and the results of these calculations are published in so-called handbooks that can be purchased for a small sum—in fact, these books are distributed gratis by steel manufacturers. There is no doubt of their efficacy in securing the use of steel for structural purposes.

The power of the handbook has extended to reinforced concrete. Dependable calculations are published by the men who make the steel reinforcement, and the knowledge furnished by them gives reinforced concrete a secure position in the building world.

Men who have risen to positions of authority as designers of great buildings are apt to adopt materials with which they are familiar.

Men whose reputations are in the making do not take chances on the stability of the buildings they are planning. Where they have but little personal knowledge of the strength of certain materials, they accept the knowledge that is given them by engineers who have been successful.

The brick industry needs a handbook. Its preparation will be a matter of years—years which, by right, should have been taken from the past century.

As it is, unless some general movement is started, and made effective by the setting aside of a generous fund to assure its speedy completion, it may be another century before a handbook of brick construction is given to the world.

The recent report of the American Society for Testing Materials, a synopsis of which is given on another page of this magazine, shows, perhaps, the beginning of the work.

The testing of one or more brick piers at the Pittsburgh Testing Laboratory, described in a paper read at the last N. B. M. A. convention, proves that surface has been scratched.

But the research that should have been going on for years—the experimenting that should have been brought to a definite conclusion long ago—still remains undone.

No one knows, today, of any rule whereby the sustaining power of a brick pier can be determined, when the basic figures are those of a certain brick with a certain crushing strength and a mortar of known formula.

No one knows how much the size of that pier may be reduced, if another equally well determined mortar is used in combination with a brick that has a greater crushing strength than the brick which has been designated as standard.

There are no figures, on brickwork, that will form the basis of a calculation that would give a result which combines maximum efficiency with minimum cost.

A steel bar or a steel plate can be tested for strength and elasticity. The figures obtained from those tests determine its limit of usefulness after it has been fabricated into a column or a girder. It is merely a matter of computation.

A brick manufacturer should be able to publish an authoritative test on his material and give figures that would enable an engineer to calculate the strength of brickwork built with that brick.

He should be able to give the results of absorption tests made on his material that would determine, at once, what proportion of lime, cement, sand and water would make the best mortar for that particular brick.

In face-brick, he should be able to tell what proportion of mortar ingredients, together with mortar color, would make the most lasting, as well as most reliable, joint. Who knows to a certainty, when the addition of mortar color above a specified quantity, will make the joint so weak that it will fall out of the wall after the first frost?

The National Brick Manufacturers' Association has a Committee on Technical Investigation. Why not amplify that committee's work, so that, at some not too distant day, the information so eagerly sought by engineers will be available in such form as will insure the intelligent and therefore economical use of brick in building construction?

Brick in the Building Codes

This lack of information is reflected in building codes, some of which are ridiculous in the restrictions put upon brick. The men who were responsible for these restrictions, being unable to find dependable calculations, "played safe" to the extent of demanding a thickness in brick walls that establishes a factor of safety infinitely greater than that which would have been called for, had that factor been a predetermined quantity.

It is well known that in many cities the thickness of the face-brick veneering is not considered as a part of the brickwork.

There being no dependable knowledge on the relative strength of metal or other wall ties, no consideration is given the question of this form of construction. The added wall thickness decreases the floor space in the building, adds to the cost of construction and helps the impression that brickwork is more expensive than other forms of construction.

Where the Trouble Lies

This lack of fundamental knowledge permeates the industry. Brick plants are started, in many instances, where the supply of clay is a comparatively unknown quantity. A man well known in the industry read a paper, some years ago, before the American Ceramic Society, in which the fact was set forth that more than one face-brick plant operated with a clay that no amount of barytes would cure of a tendency to effloresce and otherwise discolor.

And this, despite the fact that every brickmaker knows that a brick which will "whitewash" or "rust," or become "oily" on exposure to the weather, will lose every market to which it is introduced.

Killing the Golden Goose

Within the last ten years, the rough faced face-brick has attained a wonderful popularity. Its adoption would have made fortunes for the men who manufactured it, had its price been maintained. It came at a time when architects were beginning to see the beauty in color variation and texture in brickwork.

The gospel of "life" in brickwork was taken up by architects and laymen, and "run-of-kiln" became the order, rather than the exception in the service of big operations.

New textures were invented and these have run the gamut from a mere scraping of the surface, until vertical, horizontal, diagonal and plaid textures are seen on every hand. What is the result?

The brick that were said to "stay clean because they did not show dirt" are now so much cut and dragged and rolled and wiped, that they hold every particle of dust that strikes them, holding it in the indentations made by a series of wierd appliances until the first rain comes—and then permit of its being turned into mud.

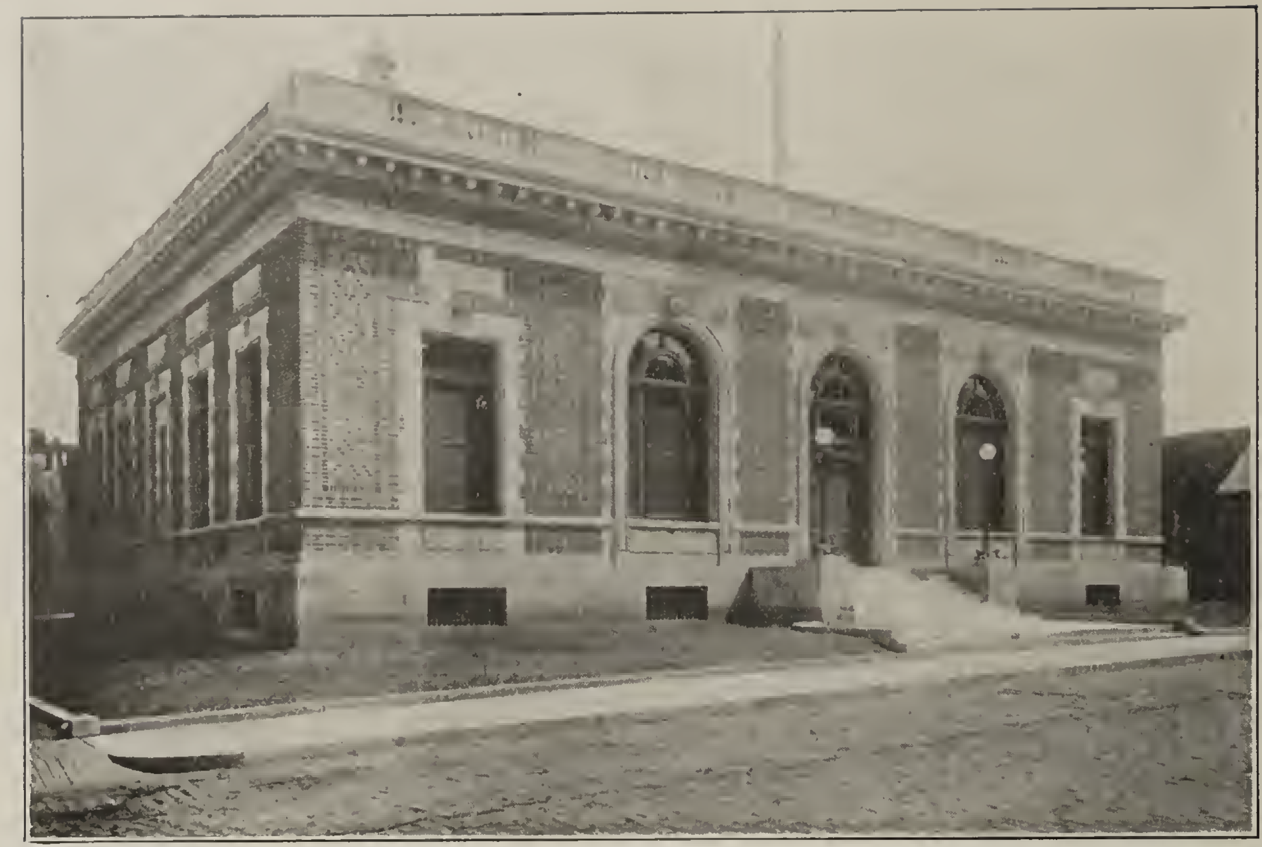
The "life" of the brickwork—its one claim to consideration—is lost in the mass of filth that clings to the individual brick. Buildings that were almost riotous in color a few months since, are dirt-colored monotones today.

Thus, the test that comes to everything which is sold—its fitness for the use to which it is put—has been overlooked by the men whose money is invested in many brick plants.

It may be that these men will wonder at the turn which is so sure to come—the turn that will bring smooth finished face-brick its former popularity. They will not realize that they have been the ones who killed the goose that laid the golden egg.

America' Builde Bric

Previously Used as a Cheap Substitute for Stone It is Now Used On Its Own Merits



Post Office at Biddeford, Maine. Note the Elaborate Pattern That Has Been Built in the Exterior Brickwork

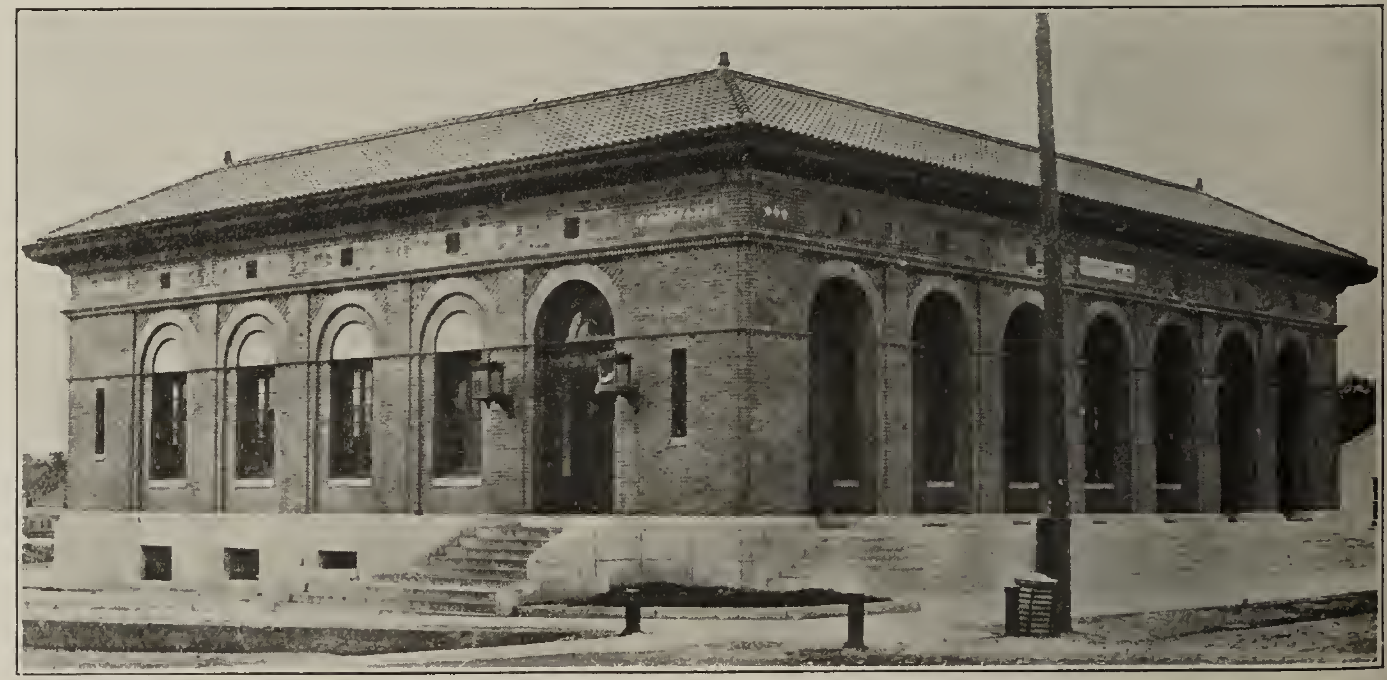
THERE WAS A TIME—not so very long since—when a new post-office meant a good job for some quarryman. Under the time-honored system of securing as large an appropriation as possible, irrespective of the size of the town wherein the post-office was to be erected, many strange things came to pass, and the country is dotted with elaborate post-offices that are, in many cases surrounded by a town of evident poverty, both individual and civic.

Being the result of a principle, and that principle being wasteful, these post-office buildings are monuments to the log-rolling efficiency of congressmen long since passed and gone, and to a governmental extravagance that would have made any nation, other than our own, a bankrupt.

Almost invariably, they were faced with stone. It mattered little whether the locality was one where stone was found—stone must be used, since stone cost more, and who wanted a cheap-looking government building? Brick, you see, was considered economical, and therefore to be avoided.

Once in a while, however, the amount that was appropriated, and the plans that were drawn in order that the appropriation might all be spent (for it would be disgraceful not to expend the whole amount) did not come together. Then revisions were made and, in many cases, brick were allowed to show themselves as substitutes for the more expensive stone, but in places where they would not be seen—that is, easily. They were used to face that part of the building that fronted on an alley, or at the rear, where the mail-wagons came and went upon their several ways.

And the brick were always selected for color—that color being as close as possible to the color of the stone that was used to face the front of that particular building.



Post Office at Brookhaven, Miss. Some Pattern Work and the Introduction of Ornamental Tile Relieve an Otherwise Severe Facade

The good account that those brick gave of themselves has much to do with the very satisfactory position in which brick today finds itself, so far as the work in the office of the Supervising Architect of the Treasury is concerned.

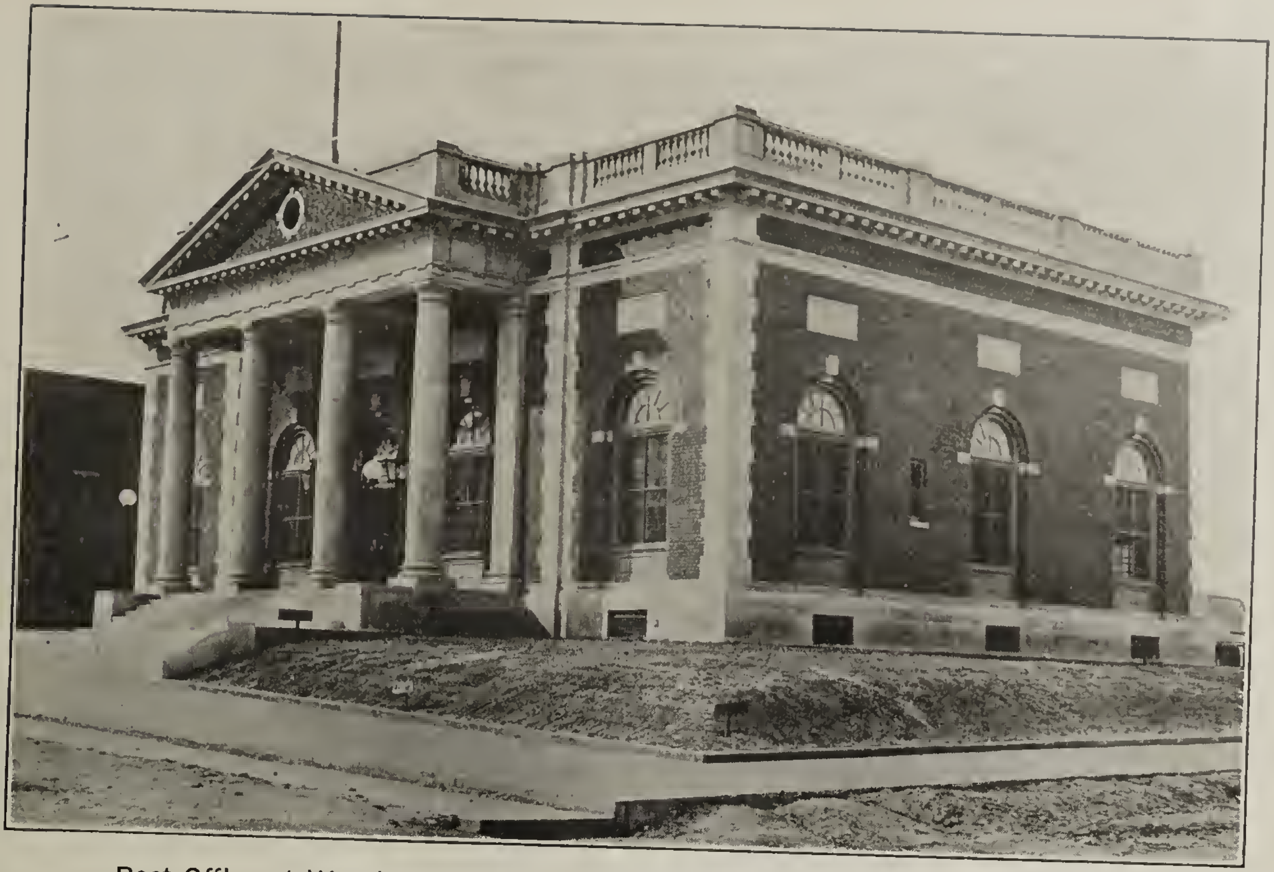
Now, instead of being used as a cheap substitute for stone, brick is boldly specified for the entire facing of the building and to this hitherto despised material a great deal of thought is given. Bonds that bring out the beauties of the brick, mortar joints that are raked or otherwise finished so that the brickwork will have individuality—these things are being done for brick and with brick by the government architects.

Now that brick has come into its own, rules and orders are issued that assure it still greater prominence. In a recent order issued by the Secretary of the Treasury to the Supervising Architect, brick is the only material considered for the facing of a large proportion of the post-offices that will be built during the next five years.

Under the old system, buildings were constructed to fit the appropriation and, as has been said, this appropriation was sought and gained practically regardless of whether or not the building was adapted to actual conditions or require-

Greatest Adopts Walls

Recent Order to the Government Architect Opens New Field for Building Brick



Post Office at Weatherford, Texas. Solid Brick Surfaces Are Relieved by an Unusual Bond

ments. Under this system, Congress authorized scores of post-office buildings costing from $50,000 to $150,000 in towns where the total receipts for mail matter would not pay for the maintenance of the buildings so erected.

Secretary McAdoo proposes hereafter to construct only such buildings as local conditions and the present and future needs of the service demand, and this, irrespective of the size of the appropriation; under no condition will any post-office building be erected that is out of proportion to the town in which it is to be placed.

A part of this official order to the Supervising Architect is interesting. It reads:

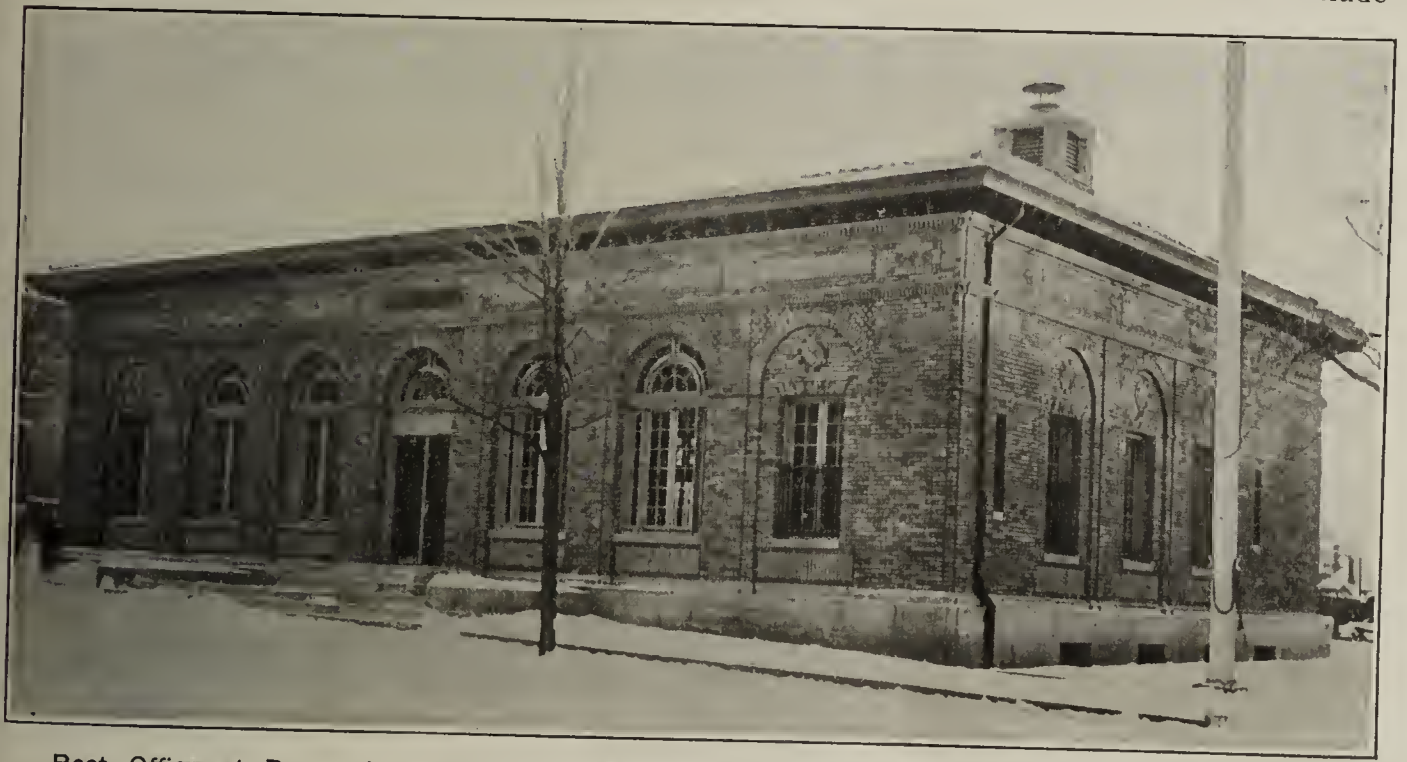
"In the design of public buildings consideration is to be given to what is appropriate to the respective communities, both as to the type of building to be erected and the materials to be used, and this is to be kept in mind, *notwithstanding the authorizations may permit of much more elaborate treatment.* Effort should always be made to conserve rather than unnecessarily to expend appropriations. This does not mean that savings are to be effected at the expense of space and facilities, or that the designs employed are to be stripped of ornamentation. The buildings provided are to be of adequate size, properly planned for the convenient transaction of public business, provided with modern facilities for the purpose, and be in keeping in their architectural design and *in the materials to be used in their construction* with the communities in which they are placed."

In connection with this, it is interesting also to know that the post-office buildings have been divided into four classes—which have been designated by letters—A, B, C and D. A and B call for stone facings but these classes include post-office buildings in which the annual receipts for mail matter run well into six figures; while post-offices of the kind that are now classed as C and D and which have, in the past, frequently been built of stone, *are always to be faced with brick in the future,* as is shown by the following extract taken from the order of the Secretary and regarding C and D.

"Class C shall consist of buildings that include a post-office of the second class with receipts of $15,000 or over and of the first class up to $60,000 annual receipts, valuation of surrounding properties being that of a second-class (post-office) city;—*brick facing* with stone or terra-cotta trimming, fire-proof floors, non-fire-proof roof, frames, sashes and doors wood, interior finish to exclude the more expensive woods and marbles, the latter to be used only where sanitary conditions demand.

"Class D to consist of buildings that include a post-office having annual receipts of less than $15,000 and where real-estate values justify only a limited investment of improvements; —*brick facing,* little stone or terra-cotta, only first floor fire-proof, stock sash, frames, doors, etc., where advisable."

Towns and cities have small beginnings. Small post-offices are the ones



Post Office at Perry, Iowa. The Spotted Appearance of the Brickwork in This Illustration Is Due to the Action of the Color upon the Photographic Plate that are going to be built for the next several years. Cities where the receipts for mail matter run more than $100,000 a year are comparatively few in number and it is only reasonable to believe that they have been already cared for in the way of stone post-office buildings in the past. It is well known that the Government when it builds, builds well. There is little talk of tearing down any of the old Federal buildings—at least until they have so grown in years as to be unsightly and insanitary.

The demand, however, for new post-office buildings in the small towns—towns that have been overlooked by the local congressmen in years gone by, is loud and incessant. Now comes Secretary McAdoo and says that while these towns may have post-offices, *the buildings must be faced with brick.*

Further quoting from his order: "Wherever local conditions permit, labor and time should be saved in the design of building by utilizing plans of buildings hitherto constructed, provided the foregoing conditions are observed. Work on the standardization of full sized details should be carried forward as rapidly as possible; and similar attention should be given to the completion of the work that has been undertaken in preparing standard specifications. The completion of these features should result in considerable saving in time in getting buildings under contract.

"In the preparation of specifications special consideration should be given to such changes as may be practicable to shorten the contract time.

"While I recognize the fact that frequently strong sentiment is expressed in favor of the use of local materials in the construction of public buildings, *I do not feel justified in limiting competition to such materials, or in awarding contracts for materials so produced at prices which amount to subsidizing local industries.* Bids should not be solicited specifically for local materials, but should be taken under such conditions as will insure the widest possible competition for the class of materials used."

It need not be pointed out that this order is going to be a big help to the burned clay industry. In addition to making it obligatory to build the small post-offices of brick, the order contains a strong leaning toward the cutting out of stone on even the large post-office structures and of using terra-cotta in its stead.

Those who are in a position to know, say that even before the order recently handed down by Secretary McAdoo the office of the Supervising Architect has leaned favorably toward brick post-office structures. Brick piers and hollow clay tile partitions are also receiving favorable consideration. Except for footings and possibly for floors, reinforced concrete does not get very far in the Supervising Architect's office. The Government architects realize that they are building for years to come and that in many cases alterations and additions will have to be made. It is their opinion that partitions built of brick or hollow tile are much easier to alter without entirely destroying them than would be cement-concrete.

Post Office at Marietta, Ohio. This Is the Type of Building Which, Ten or More Years Ago, Would Have Been Entirely Faced with Stone

Brick is favored for the backing up walls irrespective of the facing and the hollow clay tile for partitions.

Few, if any, of the fancy textures of face-brick have found favor in the Government architect's office, preference being given to smooth brick, and upon these the specifications are very rigid.

It is well for the brick trade, however, that the selection has been careful, for upon those brick that were used in the courts and alleys of the post-offices built twenty or more years ago, a great responsibility rested.

Today they are as good arguments for brick as any that are made by brick selling men who find their way into the office of the Supervising Architect of the Treasury, who prepares the plans, lets the contracts, inspects the work and pays the bills on all of the buildings erected by America's greatest builder, your old Uncle Sam.

Salmen Company Wins Gold Medal

The Salmen Brick and Lumber Company, Ltd., New Orleans, La., has received a gold medal from the Panama-Pacific International Exposition authorities for its exhibit of brick and hollow tile at the Fair. The display consists of a very elaborate arrangement of Salmen Buff No. 1 face-brick, as well as a number of exhibits of fireproofing construction. The face-brick which is laid up with a black mortar joint makes an especially beautiful display.

The medal is a handsome prize and is cherished by the officers and employes of the concern with a considerable pride.

Inexpensive Insulation for Steam Pipes

For covering low-pressure steam pipes with a cheap insulating medium, the use of a paste composed of starch and sawdust has been found satisfactory by engineers at Boulogne, France. The material may be prepared and applied easily. The sawdust is sifted so that the larger particles of wood are removed, the screening then being mixed with a very thin paste made of two parts wheat starch and one part rye starch. If the pipes to be covered are either cast or wrought iron, the paste adheres well, providing all grease is first removed from them. In the case of copper pipes, however, a thin priming coat of potter's clay should first be applied with a brush, while it has also been found advisable in all cases to wind a string spirally around the pipes to be treated. The spirals should be kept about a half inch apart. After the original coat of paste has set, other applications may be made until a covering of the required thickness has been built. Protection against the weather is given by painting the material with coal tar.—"Popular Mechanics"

Let Us Tell You What Happened—

RAY THOS. STULL, E. M., (in Cer.) instructor in ceramics at the University of Illinois since 1907, has severed his connection with that institution and become associated with the Dunn Wire-Cut-Lug Brick Company, of Conneaut, Ohio, as its ceramic engineer. His special duty will be to confer with the licensees of the Dunn Company and help them in their manufacturing problems. Professor Stull is vice-president of the American Ceramic Society, and holds membership in the American Chemical Society and the American Society for Testing Materials. His successor at the University of Illinois has not as yet been appointed.

Phoenix (Ariz.) Draws Up New Building Code

A new building code has been drawn up for Phoenix, Ariz., covering ninety pages of reading matter and representing several months of hard work on the part of the building inspector and a committee of leading local architects. Each separate section of the code has been revised and re-revised until it is claimed that the ordinance as a whole represents the very best modern practice in building.

The first section of the code gives ample rights of inspection and condemnation of buildings and ample authority to the city and its officers in case of the partial destruction of any existing building by fire.

For the purposes of the ordinance the city is divided into "special" and "general" fire districts. Within the "special" fire limits none but fireproof buildings of accepted plan and material will be allowed. Generally speaking, these buildings must be of the type of construction shown in the Adams and Jefferson Hotels in that city, in which no wood whatever is used except for trim, sash and doors. The ordinance provides that the walls of such buildings shall be of brick, hollow tile, stone or concrete and that the height of any such building shall not exceed 150 feet, exclusive of certain permitted roof structures.

The buildings which are permitted in the "general" limits must not exceed 100 feet in height nor contain more than eight stories. In such buildings the floors, ceiling joists and roof joists may be of wood but all partitions must be of metal lath and plaster and not less than two inches thick. All floors must be double and the space between the doubled floors must be filled with non-combustible material.

The remainder of the code is devoted to special classes of buildings, such as theaters, garages, hospitals, hotels, assembly rooms, and so forth, for each of which minute provisions are made for the public safety.

Magnesite Deposits in British Columbia

Nicoll Thompson, manager for Cammell, Laird and Company, has received from England a shipment of a thousand magnesite brick made from a sample of magnesite which Mr. Thompson sent from Atlin, B. C., last summer. The brick are of high quality and equal to anything, it is said, on the market supplied by American manufacturers to the Trail and Granby smelters in England, and to the iron and steel works in Eastern Canada and the United States. The Atlin magnesite deposits offer an opportunity for an important industry, as hitherto most supplies of the raw material have been imported from Greece to the United States and manufactured there. With these deposits in the northern part of the province, the raw material could be shipped over the White Pass and Yukon Railway, and by steamer from Skagway to Vancouver, where it could be manufactured to supply the requirements of Canadian and United States smelters and metallurgical works requiring this highly refractory material. The product, if manufactured there, could be supplied at from a third to half the price now charged by United States manufacturers, so that the industry is not only one of local value, but may form the basis of an important export industry.—"The British Clayworker."

Cleveland-Akron Brick Highway Being Completed

Contractors have begun work on a two hundred yard link in the road between Akron and Cuyahoga Falls, Ohio, at the Gorge, which when completed will make a straight brick highway throughout Summit county in the direction of Cleveland. The road has been closed until the paving is finished which, it is estimated, will be within thirty days.

A brick pavement twenty feet in width is to be laid on the stretch at the Gorge. This is a wider pavement than the regulation county highway in Ohio but was petitioned for by the Good Roads Committee of the Akron Chamber of Commerce on account of the peculiar and dangerous formation of the road grades at this point. When finished this new link will open up an almost all-brick highway to Cleveland as the Twinsburg-Bedford road will be paved and opened up within the next month as far as the Cuyahoga county line. Commissioners of Cuyahoga have advertised for bids to finish the paving in Cuyahoga county so that it is expected a brick road will completely connect Akron and Cleveland before winter.

Texas' Undeveloped Wealth

The mineral wealth of Texas is practically undeveloped. While there are many industrial associations and clubs operating for the betterment of local conditions in many parts of the state, none, or few of them, are paying any attention to the mineral resources.

A clayworker, who has recently gone to the Lone Star state, writes:

"We have many spots in Texas where valuable minerals are in great abundance and variety, at or near the surface, where they could be collected much more easily and cheaply than in any other part of the country, so far as I know. One particular place is in Fayette County, where a dozen different kinds are found in commercial quantities and qualities. These include lignite, fuller's earth, china clay, jug, pipe and tile clays, clays for papermaking, potash clays, magnesia clays and silicates, sulphate of iron, carbonate of iron, vital medical ore and water, medical clays, mineral water, pumice dust and stone, white volcanic ash and some manganese. It will pay promoters in a host of varied industries—some of prime importance now that importations have been interrupted—to look over this field, with every assurance of reaping a rich reward."

When the Mexican disorder is at an end Texas will have a great share in the development of the industrial wealth of the South. It will have a great help in the Panama canal. It certainly is worth taking into consideration at the present time, when so many men believe the country is on the eve of a great prosperity.

A Good Year to Build Silos

Manufacturers of silo block will do well to use the information given in "Better Iowa," a publicity sheet printed at the Iowa State College. In connection with silos, it says:

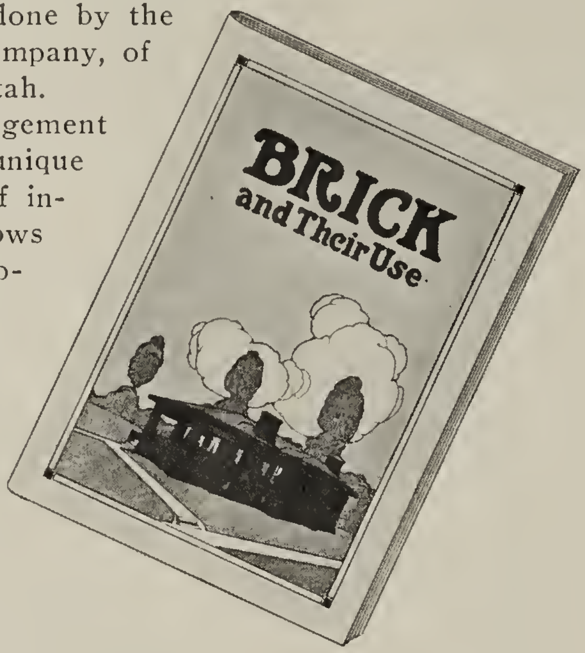
This year, of all years, is a good time for the farmer who feeds livestock to build a silo, according to the animal husbandry department of Iowa State College. There is prospect of much soft corn and that can be utilized best as silage. In fact, the silo is the only form of insurance that the farmer can command to protect himself against considerable corn crop loss in such a backward year as this.

As to the feeding value of silage there is no question. That has been demonstrated in numerous tests at the agricultural experiment station at Ames and on many Iowa farms. Beef cattle fattened with silage in the ration regularly show the largest profit, and dairy cows give best returns when fed silage. Twenty-four farmers in Clinton country reported on their silo experience to the county agricultural agent, M. L. Mosher, showing an average annual profit per silo amounting to $360.48. These farmers, through their silos, made a profit of from $25 to $30 per acre on the corn used, above a price of 60 cents per bushel. Better than all this is the fact that, in a year like the present, the farmer with a silo is sure to have good corn feed for his livestock, while the man without is not.

Exceptional Brick Advertising

The accompanying illustration gives but a poor idea of the cover of a 9½x12½ inch booklet issued by the Salt Lake Pressed Brick Company. It is the work of the Federal Advertising Agency and the printing was done by the F. W. Gardner Company, of Salt Lake City, Utah.

The entire arrangement of the book is unique and the amount of information given shows that while it is properly classed as advertising literature, it has value beyond that, in that it contains so much real information that very few, if any, architects or prospective home builders would think of consigning it to the waste paper basket.



A Noteworthy Instance of Artistic Brick Literature. The Salt Lake Pressed Brick Company's New Booklet

An excellent grade of paper is used and the printing is done in a duo tone brown. The cuts are enclosed in decorated borders and the booklet is of undoubted artistic excellence.

Shipping Clay Products to China

Eighteen thousand assaying crucibles manufactured by the Denver (Col.) Fire Clay Company were shipped recently by that company to China. The Chinese purchasers have heretofore secured this ware from Germany but advise that, should the crucibles ordered prove to be satisfactory, further orders for this class of ware will be placed with the Denver firm instead of abroad.

New Clay Developments in Washington

The Sumaos (Wash.) Fire Brick Company has opened extensive deposits of refractory clays in a tract that lies about two and a half miles from Sumas on the Bellingham and Northern R. R. According to reports of the U. S. Geological Survey, the state of Washington has, up to this time, produced but a small fraction of the fire-brick and refractories made in this country and it is to be assumed that the reason for this was the lack of raw material. The discovery of extensive clay deposits, such as have been found near Sumas, indicates that the state of Washington is as favored as any of its sisters and that it will soon produce its full quota of refractory materials.

Workmen's Compensation in Indiana

By September 1 every employer in the brick and clay industry in Indiana is expected to have insured compensation under the Indiana Workmen's Compensation Act, which becomes effective on that date. The law includes every employer of one or more persons, and only exempts from compensation the casual laborer, the farm laborer and the domestic servant. The casual laborer is any employe whose employment cannot be foreseen as the result of the regular routine of business. For instance, the man employed to clean office windows, or to cut grass, is a casual employe, but the man who is called in to take care of a periodical rush of business that is part of the regular routine of the business, is held a regular employe and subject to compensation. The only consolation for the employer is that the compensation insurance companies base the rate on the number of employes averaged per day per year, accident hazards, safety appliances and other mitigating circumstances that are taken into consideration. The theory of the law is that industry must bear the burden of its accidents and that compensation must be charged in as part of the overhead expense and added to the selling price of the product. Just how this can be done in competition with non-compensating states is not clear.

Association Gossip

There is some talk of forming an association among the face-brick dealers of Detroit, Mich. Harold W. Holmes, of the Puritan Brick Company and president of the American Face Brick Association, is one of the prime movers.

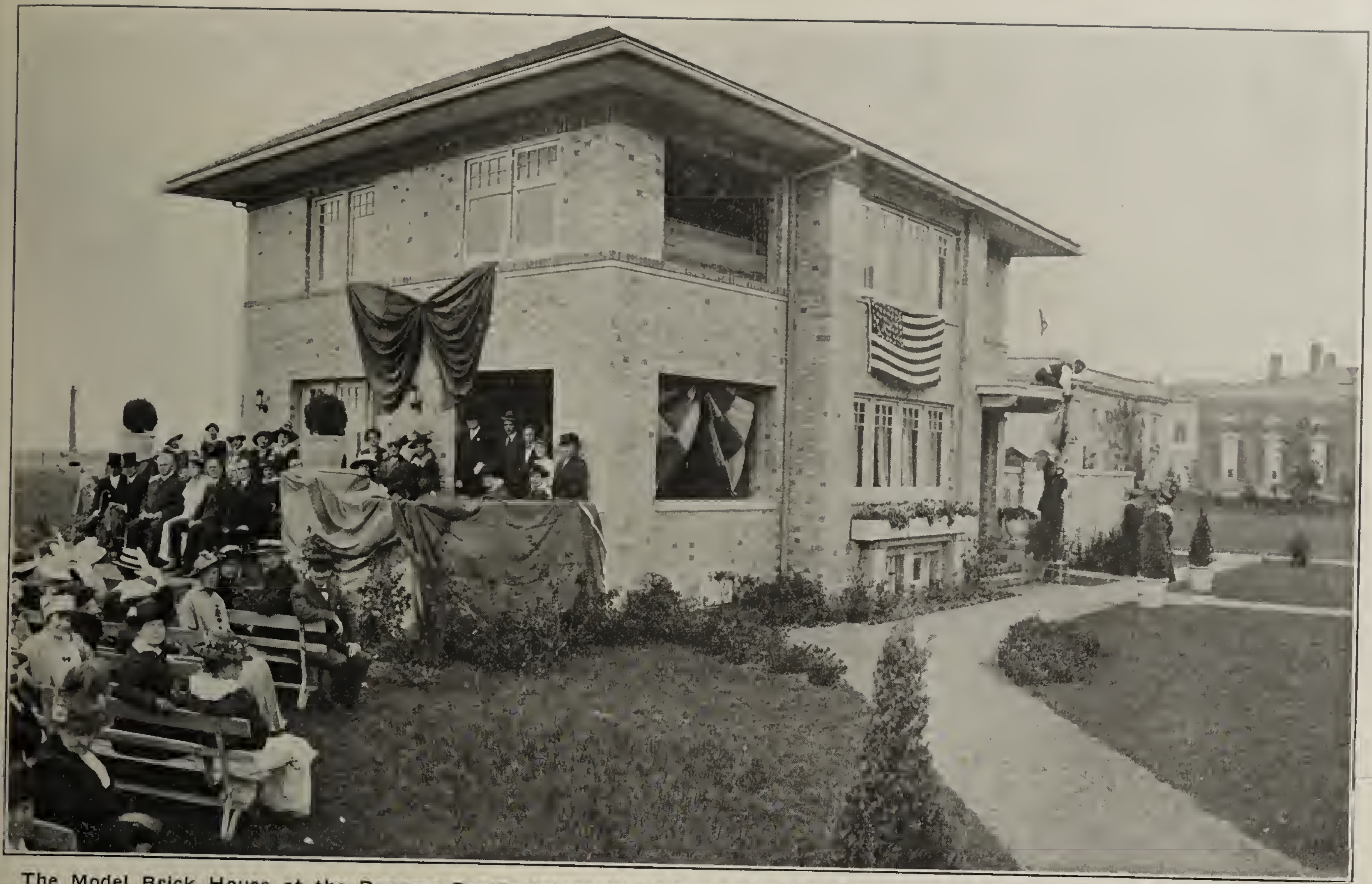
In Columbus, Ohio, the face-brick dealers have an association that meets every Tuesday evening, rain or shine. As a rule, the attendance averages well above ninety per cent.

Acting as hosts to a number of contractors and architects in their city, the association that was formed more than a year ago by the face-brick dealers of Cincinnati, Ohio, gave an excursion the early part of this month. It was agreed that none of the hosts would talk business during the day, and it is said that some of the face-brick men had a hard time "keeping off" of their favorite topic.

The Ohio Paving Brick Manufacturers' Association has been what might be called a success from the start. Formed with a view to co-operative effort in bringing the advantages of brick paving before the public officials of the Buckeye State, it has managed to increase the yardage very materially. In fact, it is rumored that Ohio manufacturers are selling more paving-brick than those of any other state.

The Iowa State Clay Products Manufacturers' Association has started an educational campaign among the "hawkeye" farmers which, it is expected, will greatly increase the use of hollow block and drain tile in Iowa.

Active work, looking to the formation of an association of clayworkers in New York, will begin as soon as the summer vacations are over. The movement will be started by Professor Charles F. Binns, of Alfred and his right-hand man—Earle T. Montgomery.



The Model Brick House at the Panama-Pacific International Exposition, as It Appeared on Its Dedication Day, July 23, 1915.

Opening the Model Brick Home

Impressive Ceremonies Mark the Dedication of the Panama-Pacific Clay Products House

WITHIN THE PAST FORTNIGHT it has been necessary to hire at least one extra servant in the model brick house that the Panama-Pacific Clay Products Association built at the San Francisco exposition.

That servant's duty is to stand at the door and deny admission to the crowds that besiege the house. It is filled and emptied as rapidly as possible but were it not for the extra servant, the incoming crowds would trample upon those who had not, as yet, had time to see the result of the long campaign for funds that was waged, mainly, through the columns of "Brick and Clay Record."

The model house stands complete; it is furnished from top to bottom and occupied. It is in charge of a woman whose name is well known to the business world and who understands home building down to its finest detail.

A problem confronts her with each day's sunrise. It is the immense throng that will pass through the house and the fact that everyone of those who do go through will ask for some information regarding it—some printed description.

To these, and all of these, Miss Brigham is compelled to say that nothing of the kind is available. She sees an advertising possibility going to waste and, being a good business woman, feels badly about it. But while it is her problem today, it was up to the clay products industry but a short time since. Incidentally, the clay products industry failed to solve the problem.

The illustration above shows the house as it looked on the day of its dedication—July 23, 1915. Walter E. Dennison, president of the Steiger Terra Cotta and Pottery Works of San Francisco was in charge, representing the Panama-Pacific Clay Products Association and Edwin Markham, the poet, read the dedicatory poem—"The Home." A representative of San Francisco's Mayor, officials of the Panama-Pacific International Exposition and a number of U. S. Army officers were among those who dealt with the crowds and saw to it that this latest and best example of co-operative work on the part of the brickmen was given a proper introduction.

The exposition closes December 4th. Three and a half months remain in which that stream of visitors may be made to bring some prosperity to an industry that needs a good dose of good times. Every promise—every prediction made by the officials of the association that had the house in charge, have been fulfilled.

There may be one exception—the distribution of printed matter. Every cent contributed by the brick trade was necessary to the completion of the house and today there is no money to buy printers' ink.

As has been said before in these columns, many's the time and often, Charles Bonner, treasurer, Chamber of Commerce Building, Chicago, will be glad to accept contributions from manufacturers of burned clay who believe that this enterprise should not be allowed to go on without returning some dividends to the men who have subscribed a sufficient amount to make it a possibility. The brick trade, in this instance, is like the man with the government bond before him. A dividend is due, but there is no scissors to cut the coupon.

A Little Talk on Local Advertising

Being a Sort of Reminder That a Nearby Market is as Well Worth Cultivating as One Farther Away

If your plant is built upon a hill, look out from the door of your office and you will see more frame houses than you see houses built with brick. If you work in a hollow, climb to the top of your tallest stack and look about you. The same disproportion of frame to brick will greet your eye.

And this happens in a "brick country." You made it that, when you established your plant. You gave the people who live near you the best building material known, and at a lower price than those to whom you are shipping it, pay you for it.

Not all of those houses are old—not all of them antedate the day you started up the yard. The new ones were built with wood because you didn't go after them.

It is to be assumed that you are convinced that brick is cheaper than wood—that is, in the long run. But you did not extend that conviction to the mind of the man about to build and—he built in frame.

Everyone realizes that the amount of building done in sight of your plant would not make a mark, one way or the other, upon your shipments. Perhaps one—perhaps ten carloads—would make up the total that would have been used last year, if those houses, now glistening with new paint, had been built of your brick instead of with some one's else lumber.

But the moral effect upon the community would have been worth all that it cost you to get that business. It would have started a brick "boom" that would have spread—spread away beyond the hills, and, in an ever-widening circle, made a demand for brick that would center in your plant.

The smaller the community—the newer the town—the greater is the power of the local paper. And, at the same time, since advertising space is priced according to circulation, it is remarkably cheap.

You owe it to your future—to the plant that you are operating—to carry real advertising in the paper that is read by your neighbors.

Real advertising means "telling them something" every time they read the paper.

You cannot know every man who is thinking of building; you may know every man in the community, but you cannot know which one will break out next, as a builder.

Keeping everlastingly at it will convert every mother's son of them into a "brick bug." When he thinks of building, he will think of brick, and, if your advertising be well done, he will think of your brick.

That local trade is well worth developing. The way to develop it is through the local newspaper.

Lives there a man with soul so dead,
Who never to himself hath said:
"I'd like my home 'built of the best'
Then I'd enjoy peace, comfort, rest."

Where is the man that knoweth not
Wood houses twist, crack, warp and rot;
Cause endless trouble and expense,
And do not give good recompense.

But when you build your house of brick,
You're sure to never have a kick.
You are not bothered with repairs,
And many other "woodhouse cares."

Your home of brick will be a treasure,
And prove "good judgment" beyond measure.
So get in line and build the best,
Then you'll enjoy peace, comfort, rest.

BUILD WITH BRICK
THE EVERLASTING MATERIAL

Decatur Brick Mfg. Co.

322 North Park. Decatur, Illinois

Proving that One Brick Company Believes in Building Up a Local Trade by Buying Space in a Local Newspaper

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Is Humidity Serious?

An article on the relation between belt tension and humidity has been going the rounds lately, making it look as though the dampness of the air is a serious thing and must be considered hereafter before tightening a belt. Several curves are shown to prove the contentions of the authors of the article.

I do not doubt but that the results of the test are honest enough and that the authors did their level best to describe the effects of humidity on "oak tanned leather belts," but why did they stop there? If it is known that a leather belt can be made immune to the effects of humidity why not make the belt immune and do away with the tests?

For instance we don't make tests on the capacity of bearings without first oiling the bearings. We know that oil is needed and so we use oil. I therefore contend that the above mentioned belt tests are of little value to the man who so treats his belts as to exclude humidity effects.

There are enough other troubles connected with belts without bothering with humidity, especially since humidity is a lost factor when the belt is correctly treated.—N. G. Near.

It is poor economy to let the plant run down. Each machine that does a little less work than it did when new, is losing money for you.

Every day you put off replacing it, or putting it in good shape, you are wasting some of your income. —"Power."

Standardizing Brick and Sewer Pipe

American Society for Testing Materials Hears Reports of Committees on Standard Specifications for Various Clay Products

SOME PROGRESS is being made toward the tabulation and ultimate publication of tests on building brick, paving block, clay and cement sewer pipe and drain tile. The work is being done by disinterested parties whose findings must be accepted as having authority. Full reports of these tests may be obtained by writing Edgar Marburg, secretary-treasurer, American Society for Testing Materials, at Philadelphia, Pa.

THE EIGHTEENTH ANNUAL MEETING of the American Society for Testing Materials was held at Atlantic City the latter part of June and reports were made by committees C-3, C-4 and C-6 which had been appointed at previous meetings, for the purpose of adopting standard specifications for building brick and paving brick; for clay and cement sewer pipe and drain tile. These reports are the result of an exhaustive study, a great part of which has been going on for more than two years. In connection with the standard specifications for building brick and paving brick, the committee says:

"At the sixteenth annual meeting of the Society, committee C-3 submitted proposed standard specifications for building brick and proposed standard specifications for paving brick, these being published in the proceedings.

"Both specifications have therefore been before the members of the society for two years. The committee is unable to determine the extent to which they have been applied but during this period very few comments have reached the committee. All means available have been utilized to obtain further information and to determine whether the specifications as submited, should be refused or amended.

"The committee therefore submits the following report, consisting of two parts; the first being a progress report on building brick and the second a recommendation that the proposed standard specifications for paving brick which are appended to this report *be submitted by letter ballot of the Society for adoption."*

BUILDING BRICK

Since the report of committee C-3 on standard specifications for brick is in print and can obtained by any brick manufacturer, upon application to the American Society for Testing Materials, little space will be devoted to it, in these columns. Suffice it to say that the report states the committee had the hearty co-operation of various university laboratories but met with a most surprising lack of interest on the part of manufacturers of brick who had been requested to supply graded samples. Although from ten to fifteen manufacturers in some districts were asked to co-operate and to send to the laboratories nearest their plants a set of samples that was accurately described by the committee, it is a matter of record that some of the laboratories were not furnished with any brick whatsoever, indicating that no single manufacturer in the district took enough interest in the standardization of brick to take the trouble or go to the expense of sending samples for test.

The tests made were the compression, transverse and absorption test. An attempt was made to carry out a classification of the brick on the basis of the compressive strength and the absorption but it was soon found that this was not practical owing to the very wide fluctuations in porosity. It was found necessary, therefore, to discard the absorption values and classify the brick on the basis of a compressive strength alone. Some interesting figures have been obtained, among others those that show the compressive strength of a considerable number of common-brick from the Hudson River district (the kind of common-brick that are used in New York City) and on brick obtained from twenty brick yards in the Chicago district; the Hudson River brick had a mean compressive strength of 3,943 lbs. per sq. in., the average modulus of rupture being 499 lbs. per sq. in. and the average absorption 15.3 per cent. The Chicago brick showed an average compressive strength of 2,156 lbs. per sq. in. and a mean absorption of 23.79 per cent.

PAVING BRICK

The proposed standard specifications for paving brick which will be sent out for letter ballot included provisions for the rattler test and for visual inspection; in that part of the specifications which have to do with the rattler test, it is provided that where a shipment of brick involving a quantity of less than 100,000 is under consideration, the sampling may be done either at the plant prior to shipment or on cars at destination, or on the street, when delivered ready for use. When the quantity under consideration exceeds 100,000 the sampling shall be done at the factory, prior to shipment. Methods of selecting samples are provided, the number of samples is specified, the manner of shipment and the storage and care of the same and the construction of the rattler is likewise described and the manner and duration of the test. Standards are given for paving brick in connection with the kind of traffic that the street is supposed to bear, the brick suitable for heavy traffic having a maximum permissible loss of twenty-four per cent while those for medium and light traffic have a maximum permissible loss of twenty-six and twenty-eight per cent respectively.

CLAY AND CEMENT SEWER-PIPE

Committee C-4 submitted a progress report on the subject of standard specifications and tests for clay and cement sewer pipes, showing that the sub-committee to investigate and report on the loads transmitted to sewer pipes under conditions of use was organized and had drawn plans for the structure of apparatus by means of which it is proposed to measure directly the actual or resultant loads which act upon sewer pipes under conditions approximating those of actual use. This sub-committee has signified that it may require one year to complete the tests which it has planned to undertake.

The sub-committee to conduct and report on the series of physical tests upon sewer-pipe consists of six members—three engineers and three manufacturers—the latter being two manufacturers of clay pipe and one of cement-concrete pipe. This sub-committee reports that it has organized, prepared plans for a portion of the testing apparatus to be employed and has completed arrangements whereby a series of crushing tests will be conducted at two locations in the East and at one or more locations in the West. Manufacturers of pipe materials represented on this sub-committee have signified their willingness to furnish specifications of pipes of both materials for testing purposes. This sub-committee has also made a compilation of data relating to tests heretofore made for determining the resistance of clay and cement concrete sewer pipe to external loading.

DRAIN TILE

At the annual meeting in nineteen-fourteen, committee C-6 presented for adoption the proposed standard specifications for strength tests of drain tile for quality of drain tile and for strength of drain tile as used in ditches. During the year which has elapsed, these specifications have made much progress, among drainage engineers and elsewhere and many reports of their adoption with favorable results have come to members of the committee. The specifications so submitted and adopted were not, however, considered to be complete.

Active investigations were under way at the time and have since been continued, with a view to securing additional experimental data, by the aid of which, specifications for absorption tests, freezing and thawing tests, and perhaps, other tests of quality of the material of the shell walls can be made. These investigations have been made for Committee C-6 by the University of Wisconsin, with Professor M. O. Withey in charge. Clay drain tile of two different diameters, of three varieties of clay, and in each case of three different grades as to thoroughness of burning are being tested for strength, percentage of absorption and resistance to freezing and thawing. Similar tests are being made of concrete tile, of two different diameters, two different proportions, and three methods of manufacture. The investigations have progressed so far that it now seems almost certain that they can be finished and the results tabulated for committee C-6 by September, 1915.

DEFINING THE WORD "VITRIFIED"

Edward Orton, Jr., of Columbus, presented a paper entitled: the "Legal Interpretation of the Word 'Vitrified' as applied to Ceramic Products," in which he stated that the clay products of this country exceeding the gross valuation of one hundred and eighty millions of dollars annually are, as yet, being marketed in a very immature and unscientific way. The larger part, he said, are being marketed without any formal specifications, as is the case with the bulk of the common-brick used.

He classes clay products into two great divisions—vitrified and porous—and since the vitrification of the products in one group were their main title to excellence, while the porosity of those in the other group was essential to the fulfillment of their function, he claimed that with such obvious and direct importance attached to the word "vitrified" there should be a clear and generally accepted definition in use, and proposed the following: "Where the word 'vitrified' is used in a contract or agreement in describing the properties of a clay product, and is not further defined in the contract, it shall mean that the product shall have attained in the firing process such a degree of compactness that its mean absorption does not exceed three per cent of its own initial weight of pure water, when subjected to complete immersion in cold water for forty-eight hours, or boiling water for three hours. Not less than three tests shall be made in determining the mean absorption, and no single test may exceed the mean by more than 0.5 per cent. Neither the possession of the visual properties or appearance of a glass, nor any definite degree of physical strength, hardness, color, or specific gravity, shall be implied as an attribute of vitrification."

Professor Orton's paper is of sufficient length to contain about twenty pages. Obviously there is too much in it to be reprinted in these columns but in this instance, as in others, connected with the American Society for Testing Materials, "Brick and Clay Record" urges upon its readers the advisability of sending for copies of the Orton paper.

Gossip About Potters and Potteries

The General Porcelain Company of Parkersburg, W. Va., is planning a new factory building 300 by 500 feet in size.

The Harris Clay Company has 7,000 acres of clay land and is producing fifteen tons of pottery clay a day at Penland, N. C.

The Wayne China Company, a new pottery concern to employ 250 men, has closed a contract with the board of trade to locate in Wooster, Ohio.

The plant of the Louisville (Ky.) Pottery Company is running full time on its regular line of flower pots and jars, finding the sale to florists and the trade exceptionally good.

The thirty-sixth annual report of the United States Potters' Association has been issued. The next report will include the special meeting of the association which is to be held this summer.

On account of increased business, the Pope-Gosser China Company, of Coshocton, Ohio, has increased its warehouse facilities and also its decorating department. A new sample room has also been provided.

J. W. Patterson, for the past seventeen years manager and treasurer of the George Cook Crockery Company at St. Joseph, Mo., has accepted the position of sales manager with the D. E. McNicol Pottery Company at Clarksburg, W. Va.

Harry C. Perrine, one of the organizers of the Swanhill Pottery Company, at South Amboy, N. J., died recently at his home in that place, as one of the most prominent citizens in that section of the state. At the time of his death, Mr. Perrine was president and one of the founders of the First National Bank of South Amboy.

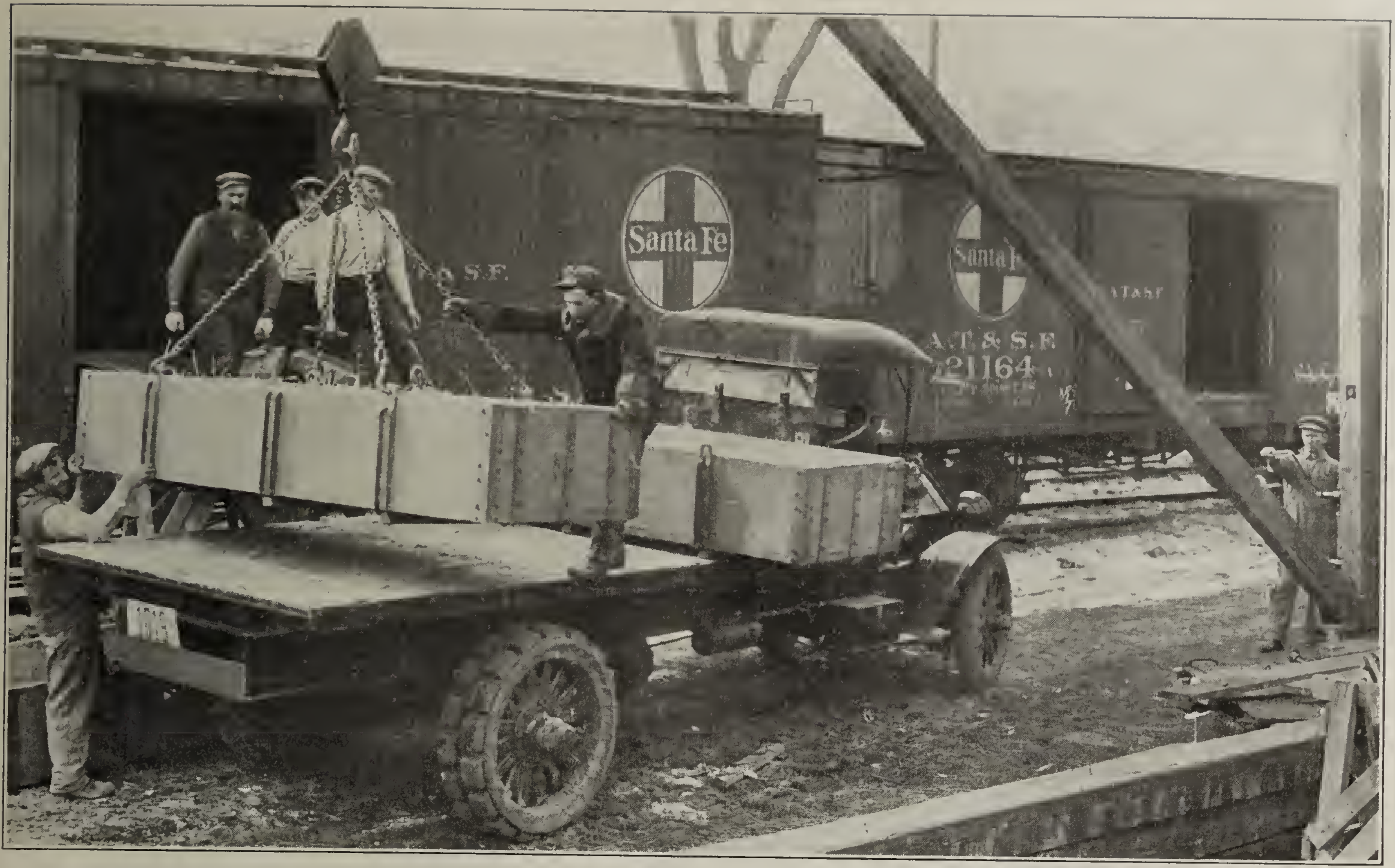
It is reported from Alliance, Ohio, that the plan to erect a twenty-four-kiln pottery there has been abandoned for the present, but investigation will be continued by the commercial body having the matter in hand.

Some of the stoneware pottery manufacturers in the Zanesville (Ohio) district have increased their selling lists, claiming that many items they make have been sold heretofore below cost of manufacture. These new lists are now effective.

For the first time in over a decade all kilns at the plant of the Warwick China Company, Wheeling, W. Va., are in service. This concern is dividing its production into vitreous dinnerware, china and hotel ware and a semi-porcelain body.

Col. Will A. Rhodes has been placed in charge of the sales department of the Carrollton Pottery Company, at Carrollton, Ohio. This firm is having a very busy season and has made the announcement that the construction of two additional kilns is to be taken up at once.

Edward P. Knowles, former purchasing agent for the Trenton Potteries Company, Trenton, N. J., died recently at his home, 48 Princeton avenue. He is survived by a son and a daughter.



Loading the Brick-Filled Boxes or "Skips" on the Motor Truck at the Cars. In this Instance, Each "Skip" Contains One Thousand Face-Brick. The Time Required for Loading the Truck is But a Few Minutes, After Which it Speeds Away to the Building with Its Burden

Delivering Brick at a Bargain Price

A Low-Cost-Per-Thousand Hauling Method, Devised by a Contractor, That Can Easily Be Adopted by the Brickmaker

NINETY-EIGHT CENTS as the cost per thousand of handling face-brick from the cars to the job is a figure that should be of considerable interest to every brickmaker who quotes a price on his product laid down at the work. While this amount has been found sufficient to place the brick that requires careful handling within reach of the mason, it has been lowered twenty-five per cent in handling common-brick—the estimated cost of moving that product being about seventy-five cents per thousand. Nor has hollow tile been omitted in this startling reduction of handling costs, for equally low figures have been found to apply in calculating the cost of transporting that ware from the cars to the job.

But how is this being done? Who has been able to deliver clay products to the hand of the user at such a low expense, and where is it being done?

About two years ago a certain Chicago contractor, who does a large amount of out-of-town work, principally in the states of Illinois, Indiana, Michigan and Iowa, was awarded the contract for the erection of the Moline (Ill.) High School, a building to cost in the neighborhood of $260,000. This contractor usually buys his materials f.o.b. the town or city in which a job is being done and then hauls them from the cars to the work.

Prior to the Moline job, teams and wagons had been employed for this purpose, but it was an undoubted fact that this method of moving materials was becoming more costly every day. In order to cut down this growing expense and to provide a more rapid means of moving his building materials, this contractor began to look for something more economical and efficient than teams and wagons for hauling purposes.

The motor truck was hit upon. This vehicle would furnish the necessary speed, but it was not only a saving in time that was being sought, much as this would decrease the cost of handling his materials. As every brickmaker knows, the greatest source of expense in the moving of brick or any clay product from the railroad or plant to the job, is in the loading and unloading of the wagon or conveyance. If some means could be devised for eliminating at least one of these operations, considerable money would be saved. With this in mind the contractor in question constructed a number of rectangular boxes or "skips" sufficient in size each to contain a thousand brick. These were thoroughly reinforced with iron bands. It was decided that the truck and the "skips" would be given their first tryout in delivering the brick to the high school building at Moline, then under construction.

At the car the "skips" were placed on wooden horses where they were loaded with brick by three men who stayed at the car and who were constantly at work loading these boxes. A three-ton motor truck was used to carry the "skips" from the car to the work, a distance of about a mile averaging an eleven per cent grade, one-quarter of which was up a twenty per cent grade. It required about twenty minutes for the truck to make this trip, completing three trips every hour. Two "skips," each containing a thousand brick, were carried on each trip, these being loaded upon the truck at the car by a small hand power derrick, as is shown in the illustration at the top of the first page of this article. Only a few minutes are required for this operation after which the truck speeds away to the site of the work where another derrick lifts off the boxes and places them on a small flat car as is shown in one of the pictures on the opposite page. This car travels on rails which run entirely around the building, passing each point where the masons are working, thus the car is placed conveniently so that the brick are handled from the "skip" directly into the masons' hands. This system eliminates the necessity of unloading the brick by hand from the motor truck, which only tarries long enough at the building to take on any empty "skips" that might be there. Then it goes on its way back to the railroad where it receives another load of two "skips," the process being repeated again and again.

At the Moline job the truck was operated continuously throughout a nine-hour day, during which time it only consumed eight gallons of gasoline. The contractor, who introduced this method of handling brick, states that the truck is easily accomplishing as much as was formerly accomplished with four teams and as many men. He estimates a net saving every day the truck is used of $13.40 over what it was costing him to move his materials by team. This saving is arrived at by figuring in a twenty per cent depreciation on the truck every year, the wages of the driver, the cost of gasoline, oil and grease consumed, tire renewals and repairs which are estimated at $100 annually. As a matter of fact these repairs only amounted to $61 the first year the truck was in service.

A Truck Carrying Two Thousand Face-Brick Climbing Up an Eighteen Per Cent Grade at Moline, Ill. Nine Hours Each Day and Six Days a Week This Truck Traveled Over the Distance from the Job to the Cars, Which is About a Mile, with an Average Grade of Twenty Per Cent, Consuming Only Eight Gallons of Gasoline Daily

Against this total is placed the cost of four teams and the necessary equipment such as harness, the cost of the wagons, the wages of four drivers and $40 a month upkeep for each team which includes board, repairs to harness, shoeing, etc., but no depreciation on the horses or the equipment. That this contractor had good horses may be gained from the fact that when he sold them, he received an average of $600 apiece for his teams.

When the cost of operating four teams is totaled and compared with the cost of operating one motor truck, a difference was found, as shown above, of $13.40 each day or about $4,020 a year—enough to pay for a first class motor truck with a goodly balance left over. In other words, the motor truck used by this contractor more than paid for itself the first year it was used.

As has been mentioned, the cost of moving face-brick with the truck and "skips" was found to be about ninety-eight cents per thousand. Just how this figure compares with the price charged by teaming contractors in Moline for moving this commodity may be seen when it is learned that the cost of the latter method is about $2.25 for face-brick per thousand in that city. This contractor states that with a straight haul of one mile, he can move common-brick for $.75 per thousand as compared with $1.75, the cost of transporting commons with team in the same town. In the moving of common-brick, less care is required in handling. Three "skips" are carried by the truck instead of two, this being possible because of the fact that the brick are thrown into the "skips" instead of being neatly laid in rows as is done when face-brick are handled. Each "skip" of common-brick, therefore, weighs less than a "skip" of face-brick, and so the truck is able to carry an additional box.

Three million brick and tile were handled in connection with the Moline job, and with the use of the motor truck, a considerable saving was effected. The cost of transporting the hollow tile was lowered, the truck being loaded as usual with the "skips," but because of the bulk of the tile as compared with its weight, more boxes could be carried on each trip than was possible than when brick was the commodity being handled.

Since the completion of the first job at which they were used, the truck and "skips" have been in service continuously, a notable instance where they effected a considerable saving being at Bloomington, Ill., where one truck carried all of the building materials used in a $300,000 high school which was erected at that point.

In applying this same method to the hauling of brick from the plant to the job, the fact that a derrick is necessary should not at all interfere with its economy and practicability. Only a small hand derrick is required, one such as can be purchased anywhere for about $30. This derrick could be rigged up in the yard and become a permanent fixture of the plant.

In unloading the "skips" at the job, no derrick would be required. The "skips" could be skidded off of the truck very easily onto horses or a raised platform, where one man could unload them piling up the face-brick or tossing the commons into a pile. This system would release the truck after only a few minutes required for unloading the "skips," so that it could return to the plant for another load without loss of time.

The use of the motor truck in handling clay products from the cars or plant to the job is becoming more and more a matter of necessity if the fullest profit is to be realized from the sale of these commodities. Already many brickmakers have been convinced of the advantages of this vehicle and in many instances have a "fleet" of trucks in service which are showing a distinct saving over past hauling methods. The initial cost of a motor truck is less than the number of good teams and wagons necessary to do an equal amount of work. The depreciation on the former is also less, as a good team will rarely last more than five years, especially in the cities, while a motor truck will give seven or eight years of service with hard usage.

Of course the greatest saving with a truck is in the reduced amount of time required in which to make trips between points. Time is money, and for every minute of that precious commodity that is saved, an added profit is placed in the hands of the one who saves it. Quicker deliveries and more of them are possible with a motor truck; materials are moved faster and the truck can be kept steadily in operation at a good rate of speed—it never gets weary.

Labor costs in connection with a motor truck are also much reduced. In the case of the contractor here mentioned who effected such a remarkable saving in the handling of clay products, at least three men were displaced by the use of a truck. While the wages of the chauffeur would be more than those of a teamster, it can be safely said that the wages of at least two men were saved. The upkeep cost of a truck is less than of teams and wagons. The truck costs nothing for operation only when it is running, and there is a greatly reduced expense for stabling.

Unloading the "Skips" at the Job From the Truck Without Being Handled. If Necessary, the Derrick Could be Dispersed with and the "Skips" Skidded off of the Truck

Placing the Loaded "Skips" on a Small Flat Car Which Deposits Them Conveniently for Handling the Brick to the Mason, Which is Done by the Mason Helper

Initial Difficulties in Roofing Tile Manufacture

Many brickmakers have a clay which could be used satisfactorily for the manufacture of roofing tile, according to a writer in the "British Clayworker." He says that the owners of these plants would like to make a small number of tile each year, but refrain from so doing, on account of what they rightly regard as the risks of the roofing tile business.

When a brick manufacturer does start making roofing tile, it is often a long time before his efforts meet with success, because the shape of the tile seems to make their manufacture difficult, and the necessary skill does not readily come to men who are accustomed to the heavier and cruder work of brickmaking.

The experienced brick manufacturer who starts making roofing tile produces them satisfactorily in the green state, but when he comes to examine the dried and burned tile, he finds that the proportion of cracked, broken and damaged ones is so large as to make the business entirely unprofitable. What is the reason for this serious loss, which is not experienced when making brick from the same material and burning them in the same kilns?

It will usually be found that the tile are much more sensitive to feeble currents of air in the drying shed, and shocks that would have no effect on a brick will render a roofing tile useless. Moreover, the shrinkage of a clay used for brick may vary within fairly wide limits, but that used for tile must be within very narrow limits, or product will be too twisted and warped to be salable. In burning, the thinness of the tile makes them sensitive to rapid changes in temperature, and the management of the kiln must be more skillful in order to obtain a profit from the manufacture.

The first improvement may be made by selecting the clay more carefully than is usually necessary for brick, and by adding a proportion of ground brick or tile so as to reduce the shrinkage of the material to less than one inch per linear foot. The less the shrinkage, provided the clay is sufficiently plastic to work well, the more likely it is to dry and burn without loss of shape, so that the larger the proportion of burned clay which can be added, the more true will be the finished tile.

Men unaccustomed to the handling of green tile are seldom sufficiently careful with them. This leads to a heavy loss by cracking, though the cracks may be so fine before the tile are burned that they may not be recognized until they are drawn from the kiln. This suggests another thought, viz., that great care must be taken not to blame the kiln or burner for faults which are produced in the earlier stages of manufacture, but are overlooked or invisible until the tile have been fired.

Barrows used for the transport of tile must be well provided with springs or buffers to prevent the tile from being damaged by shocks. In large tile works on the European continent the use of mechanical conveyors is almost universal, as they enable the tile to be moved without the risk of damage, which is almost inevitable when hand barrows are employed. Some manufacturers of tile take remarkable pains in the movement of the unburned tile and lay straw, felt and other shock absorbers on the staging of the wagons or cars on which the tile are carried. It is possible that some of these precautions are unnecessary, but it is better to be over-cautious at first and to relax gradually as the manufacturing processes become more settled.

When drying tile, too much attention cannot be paid to every "symptom" as it develops. One of the secrets of successful drying consists in raising the temperature to a suitable extent without permitting any drying to occur, and afterwards allowing the drying to proceed. It is easily possible to heat the most tender clays to a temperature well above the boiling point of water without the slightest cracking, so long as this is done in a small air-tight chamber so that no drying can occur. The cracking of tile in drying is due chiefly to the surface drying more rapidly than the interior; this can be prevented by keeping the atmosphere of the dryer so charged with moisture (steam) that it will not take up more water from the tile. Then, when the tile are uniformly heated to such a temperature that all the water in them is converted into steam, the atmosphere may be partially replaced with drier air, so that some water is removed from the tile, without any risk of internal strains and consequent cracking.

As many tile manufacturers have not made the necessary investigation to carry out this principle fully, they usually adopt a crude plan of piling the tiles on each other until they are partly dry, and afterwards drying them separately. This is a very slow process, though otherwise quite satisfactory.

The burning should be done steadily, but with really dry tile little difficulty is encountered in this branch of the manufacture.

Government Report on Sand Lime Brick

MANY INQUIRIES have been made, during the past few months as to the progress of the sand-lime brick industry in this country. Perhaps the best answer that can be made is contained in a bulletin recently issued by the U. S. Geological Survey, and written by Jefferson Middleton. This bulletin says, in part:

The sand-lime brick industry has been established in the United States since 1901, when the first plant was started at Michigan City, Ind. Since that time it has passed through the various stages of a new industry. In the beginning it suffered severely from the "boomer," whose glittering promises to make for a few dollars a thousand brick that would sell in competition with high-grade face clay brick caused plants to be established for the manufacture of sand-lime brick without regard to market, transportation facilities, or even a supply of suitable material. Some plants constructed under these conditions never even attempted to market their product. Then came the natural reaction when the number of the plants and the value of the product decreased even more rapidly than commercial conditions would have seemed to warrant. Since that stage, within the last few years, the industry appears to have become firmly established.

In common with most new building materials, sand-lime brick has had to overcome prejudice in the minds of some architects and builders. This prejudice was sometimes justified by the poor brick resulting from ignorance or lack of technical skill. The plants making this poor material have either gone out of business or have improved their product, so that today at many places sand-lime brick is successfully meeting the competition of clay building brick. When this material was first produced in the United States, it was thought that it would be used as wall coping, ornamental pieces for garden and lawn, window sills, trimmings, lintels, columns and capitals, as well as for building. None of these uses have been made extensively. The tendency has been to make only building brick.

The condition of the sand-lime brick industry in the United States in 1914 was on the whole rather unsatisfactory to the manufacturers, though in some states, notably in Florida and Indiana, considerable progress was made. The year opened with good prospects for a prosperous season, and many operators reported that these prospects were in a fair way to be realized when conditions arising from the European war put a check to building activities, and from that time forward business was reported poor. The number of active operators reporting decreased as compared with 1913, and one state that reported business in 1913 dropped from the list of producers. In 1914 the value of the output was $1,058,512. Compared with 1913, this was a decrease of $179,813, or 14.52 per cent; compared with 1912, it was a decrease of $141,711, or 11.81 per cent; but compared with 1911, it was an increase of $160,848, or 17.92 per cent. The average value of output per active plant in 1914 was $17,073; in 1913 it was $18,211; and in 1911 it was $13,601. Nine of the 23 states reporting a marketed product in 1914 showed an increase and 14 showed a decrease. These increases and decreases were confined to no one section of the country. Florida, Indiana, South Dakota and Wisconsin showed the principal increases; California, District of Columbia, Massachusetts, Michigan, New York, Pennsylvania, Texas and Washington showed the largest decreases.

The following table shows the production of sand-lime brick in the United States from 1903 to 1914, inclusive:

Year	Number of Active Firms Reporting	Value of Product
1903	16	$ 155,040
1904	57	463,128
1905	84	972,064
1906	87	1,170,005
1907	94	1,225,769
1908	87	1,029,699
1909	74	1,150,580
1910	76	1,169,153
1911	66	897,664
1912	71	1,200,223
1913	68	1,238,325
1914	62	1,058,512

This table shows that the value of sand-lime brick marketed and the number of active plants reporting rose rapidly until 1907. In 1908 there was a decrease, in common with other industries. In 1909 and 1910 there were slight increases. In 1911 the lowest value ($897,664) was reached since 1904, when the industry first became well established. In 1912 and 1913 there were gains in value, the total for 1913 being the maximum; but in 1914 there was a decrease, the value of the product in that year being the lowest since 1908 except in 1911. The number (62) of active firms reporting in 1914 was the smallest since 1904.

The average price per thousand for common sand-lime brick was $5.99 in 1914, as compared with $6.27 in 1913, $6.46 in 1912, and $6.09 in 1911. For front brick the average price was $9.08 in 1914, $10.61 in 1913, $10.41 in 1912, and $9.53 in 1911. In 1914 common-brick represented 93.38 per cent of the value of all products and front and fancy brick 6.62 per cent. In 1913 common-brick represented 90.32 per cent of the value of all products and front and fancy brick 9.68 per cent.

Drain Tile vs. Capstan Ditch

Facts and Figures That Verify Claims of Drain Tile as Opposed to the Practice of Draining With Open Ditches

By Prof. E. R. Jones

of the University of Wisconsin

THIS PAPER was read at the annual convention of the Wisconsin Clay Manufacturers' Association, held at Milwaukee, February 4, 1915. It caused somewhat of a sensation at the time, and its publication now is due to a number of requests made by the readers of this magazine.

AN EMINENT ENGINEER in Illinois has said that in any place where a ditch with a bottom less than eight feet wide will take the flow of water it will pay to use large tile instead of an open ditch. This is the keynote of one of the lines of progress that is being made in inland drainage districts. There is a growing need for large tile.

There are eight or ten capstan plows at work right now in Wisconsin making open ditches about three feet deep and seven feet wide at the top. The ditches made by these machines are carrying considerable water. Some of them will never pay for themselves because of their poor location and construction, and even the better ones could be replaced by tile profitably and should have been tiled in the first place.

The capstan ditch costs $1.50 a rod; a line of six inch tile can be bought and laid three feet deep for less than that. To be sure, the capstan ditch will carry more flood water than the tile will, but the tile serves as a better and more permanent outlet for underdrainage, thus more of the rainfall will percolate into the ground and there will be less surface water to be removed. Furthermore, if, after the tile are laid, there appears to be a need of better surface drainage, with a plow and a road-grader a well sloped surface run can be laid ten or twelve feet wide and a foot deep near the tile for relief.

On boggy marshes at the foot of uplands there is very little surface water and a four inch tile is better than a ditch to cut off seepage because it will maintain its depth. On the lower marshes along sluggish streams, where there is not enough fall for tile, may be found the only place for a small open ditch, and as soon as the creek is dredged, tile ought to take the place of the open ditch, even there. I advise open ditches on these low back water marshes because if tile are laid there they will not do good work, and people are apt to condemn tile drainage generally for the foolish mistake that some one farmer makes in laying tile where he did not have an outlet.

About four hundred thousand acres of land in Wisconsin have been organized into drainage districts and provided with outlet ditches from four to eight feet deep. All of these ditches should be eight feet deep so as to furnish a satisfactory outlet for the tile which are to complete the drainage of these lands. In the majority of cases it is just as wet now twenty rods back from such a ditch, as it was before the ditch was dredged because no effort has been made to cut off seepage water from the upland. In many places three or four lines of four inch tile discharging into six or eight inch tile to carry the water to the outlet ditch, will so cut off seepage from the hills that the land between the tiled portion and the outlet ditch will have satisfactory drainage. In any case the edge of the marsh should be tiled first and the interior only as the need of tiling becomes apparent. *It is to your interest as tilemakers to see that every line of tile is laid where it will do the most good.*

There is a company in Iowa that is manufacturing a patent drain head to be put on top of six inch tile standing in a vertical column and reaching down through a tight layer of soil into the more open stratum below. Some of these drains are doing very good work, but it all depends upon the conditions in the subsoil. On most areas having a good outlet, it is not likely that vertical drains will take the place of horizontal drains to a very great extent. In "pot-holes" where the tile would have to be laid through a ridge ten or twelve feet deep, the vertical drain should be used if possible, but it is not probable that more than one-half of the "pot-holes" in Wisconsin can be drained in this way. In many of these the water will come *up* through the holes thus dug, instead of *down*. In any case the patented drain head at the top appears to be nothing more than a seven dollar ornament. If the subsoil is such that no vertical drainage will take place, it will take place just as well with nothing more around the top of the tile than two brick and about one-half load of gravel.

At Stanley, Wis., on a very tight clay, the farmers thought that it was impossible to secure underdrainage by tiling. As an experiment, the Department of Soils laid three thousand feet of four and five inch tile at that point five years ago. Last season, during a period of wet weather, measurements were made of the amount of water running in the tile. It was found that the rate of discharge was such that it would take fourteen days for a line of tile to remove an inch of water from a strip of land two rods wide on each side of it. The requirement in a clay soil is an inch in four days. This means that in those soils which secure uniform drainage, the tile should be between one and two rods apart. Of course, this will be prohibitive, except where special crops are to be raised. Fortunately no marsh in Wisconsin has been found as retentive as the Colbey clay in the neighborhood of Stanley.

It is on these tight soils that the laying of three-inch tile in short lines may be possible, but generally nothing less than four-inch tile should be laid.

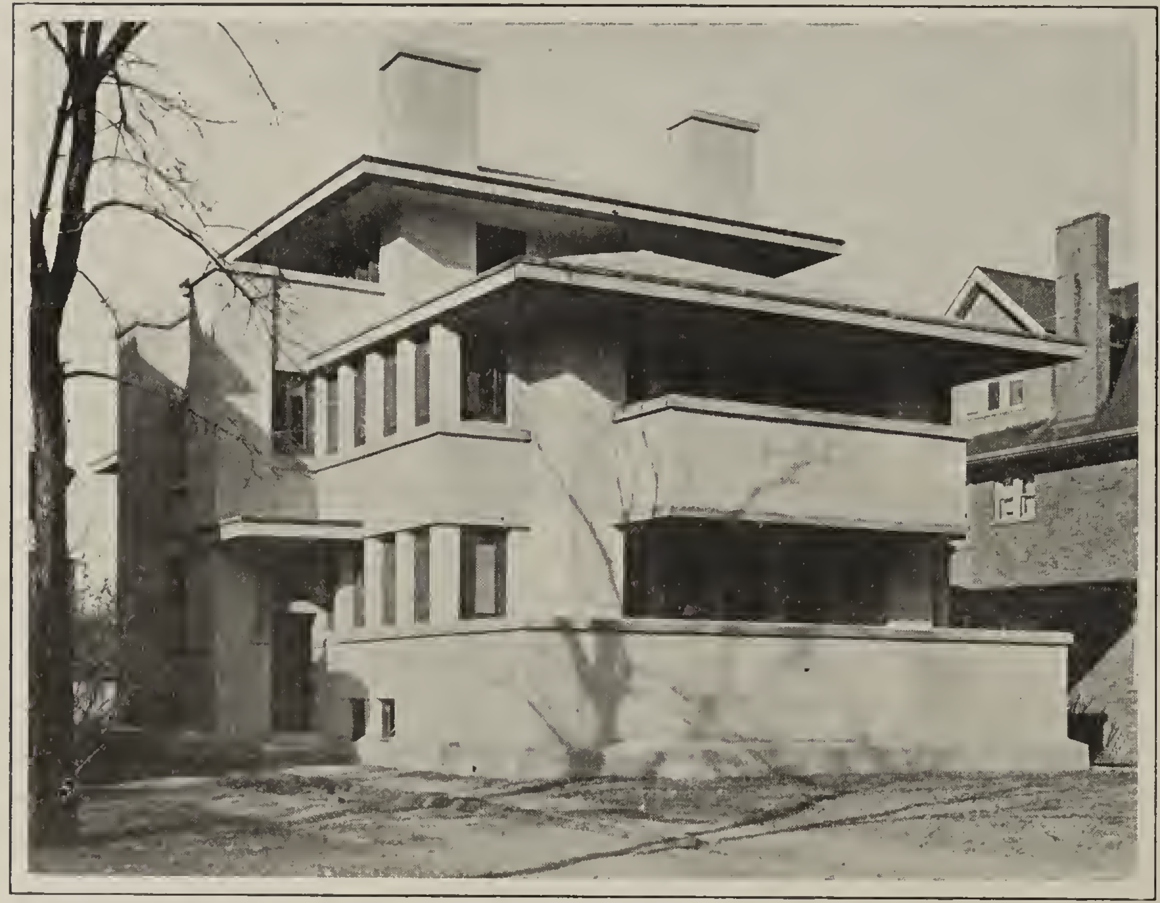
Most Wisconsin tile manufacturers appear to be satisfied if they can supply with tile only the territory within hauling distance by team from the factory. This is twelve or fifteen miles at the most. The result is that lands in those localities are generally very well tiled. There are, however, a great many communities in Wisconsin that need tile, but where it is almost unknown. When these communities begin to lay tile, it is invariably one from outside of the state, for the simple reason that our Wisconsin dealers do not go after the business.

The Two-Family House Built of Hollow Tile

What a Building Contractor, Who has Made a Study of It, Thinks of This Material for Use in House Construction

THE FOLLOWING ARTICLE, which is republished from "The Building Age," has many points of interest not only for the man who manufacturers hollow tile, but also for any who are contemplating the addition of this product to their wares. The many advantages of hollow tile, especially in the construction of two-apartment houses, is given. The Bovee house is worthy of more than passing interest, first, because it was designed by a well known architect, Walter Burley Griffin, and second, because it brings out the flexibility of hollow tile, adapting itself in this case to a very unusual style of architecture.

FOR PROSPECTIVE BUILDERS who are desirous of securing the advantages and privileges that come with the owning of a home, and yet feel that they cannot invest a large sum in a residence whose only financial return is taxes and interest, the two-apartment building offers an attractive investment. The large number of this type of structure that is being erected, especially in our larger cities and towns, is ample proof that many people are taking advantage of this fact.



Front View of a Two-Family House Built by M. E. Bovee at Evanston, Ill. Hollow Tile Was Used in the Construction of the Walls of This Building

With this constantly increasing demand for a building that combines the satisfaction of living in one's own house with the receipt of an income from the rent of the other apartment, has come a corresponding pressure which is being felt by both architect and contractor for buildings that are an improvement in construction and design over their predecessors. In other words, there is a tendency on the part of each successive builder of a two-apartment building to want something better than his neighbor.

This desire is not born of jealousy or social ambition, but has good, sound economic reasons behind it. An apartment that possesses a well-finished interior with every modern convenience, brings the highest rent, while a building whose construction requires little in the way of repairs, little effort to maintain sanitary conditions, the smallest amount of coal to heat it and a low insurance rate, is the most popular with the man who is figuring on investing in a building of this type.

To every one, the two-story frame building with two apartments is a familiar sight. Its origin dates back many years. In fact, wood has been the prevailing material in the construction of this type of building in the past. The two-apartment house built of brick is also a type that is well known among those who have made building their life work, and duly considered all its various details. There is another type of two-apartment building, however, which does not come under either of the classes above mentioned, but for which there is a constantly increasing demand in the way of information and knowledge concerning its merits from an economic and structural standpoint. It is the two-apartment house built of hollow clay building tile, of which the accompanying illustrations are examples.

In a talk with a Chicago contractor recently, it was learned that he was living in a two-apartment building which he had erected for himself. Just how he came to use hollow tile and what he thinks about it as a material to be used in the construction of this type of building, is rather interesting, especially since it comes from a man who has had an opportunity to observe the behavior of all classes of material under varying conditions.

Prior to the spring of 1914, this contractor knew little about hollow tile, but during the brick-makers' strike which was in progress at that time in Chicago and vicinity, he was compelled to change the plans for his home which he was about to build of brick and use some other material or abandon his project. He finally decided on a hollow tile construction with a coating of stucco. He found that he could put up this building, using hollow tile, at a cost of about five per cent more than had he used a frame construction, and about five per cent less than it would have cost him had he followed out his original plans and built with brick. The very first step he made using a hollow tile construction brought him a substantial saving.

Living in one of the apartments and having an opportunity to observe the building very closely, he has learned many interesting facts about hollow tile. For instance, a friend who erected a two-story building of brick in the same section of the city, burned twenty tons of coal during the past winter to heat both apartments, while this contractor-owner used but thirteen tons to keep his house warm and comfortable, and yet his building is in a more exposed location that that of his friend. In both instances, a hot water heating system is in use, and with bituminous coal, which is burned in these boilers, at the Chicago price of $7.00 a ton, the contractor who built his house of hollow tile, saved $49.00 in one winter on this item alone.

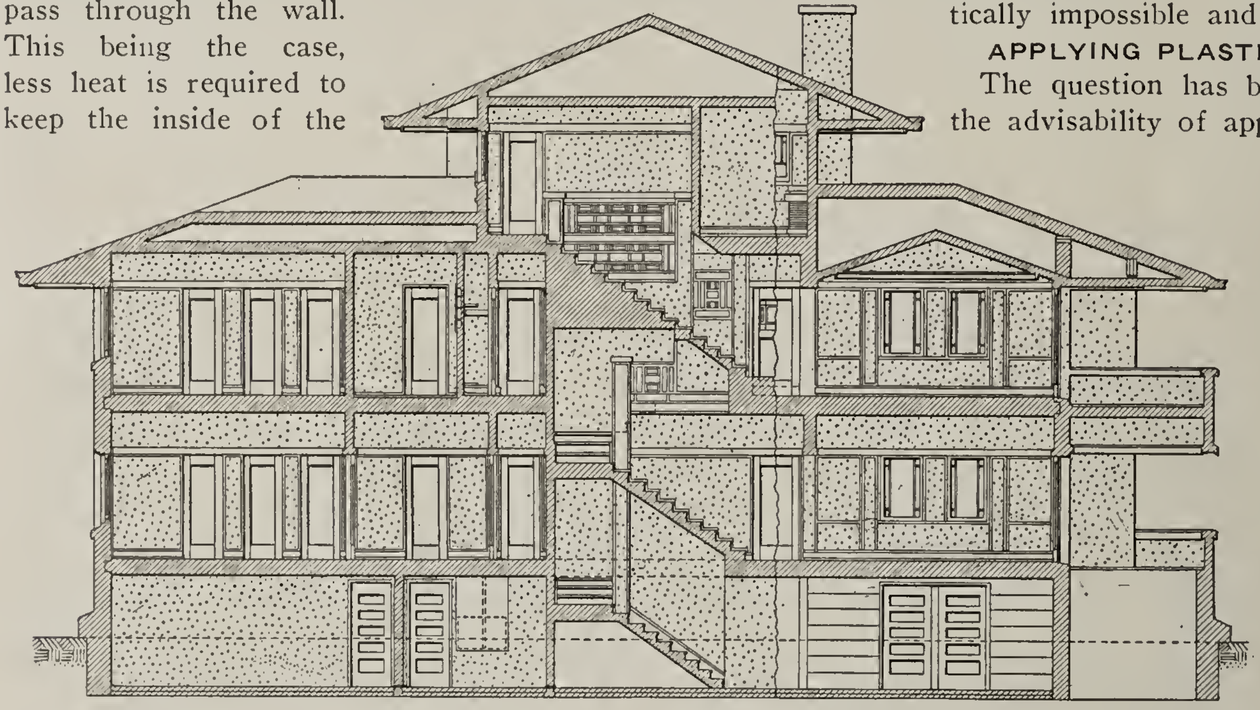
The reason hollow building tile makes a house that is easily warmed in the winter and kept warm, is because of the intervening air spaces in the tile. It is a fact which has been gleaned from experiment and experience, that

A Two-Family House of Hollow Tile Built at Riverside, Ill., a Suburb of Chicago. The Rear Porches Are Entirely Closed in With Walls of Hollow Tile

The Rear View of the Bovee House, Showing the Well-Kept Lawn and Garden, Which Makes This Part of the House as Attractive, if Not More So, Than the Front air conducts heat much more slowly than a solid material. While a wall of solid masonry is said to be about the best protection against extreme changes in temperature it is possible to get, it is a fact that such a wall slowly, but surely, assumes the same temperature as the outside air with each variation in temperature. During a protracted cold snap, for instance, a solid masonry wall will gradually become cold until the entire wall is the same temperature as the cold air out-of-doors. When this condition has been brought about, the cold wall begins to absorb a large amount of the heat from the air on the inside of the house, which means that the heating plant has to work that much harder, requiring more fuel to keep the rooms warm and comfortable because of the chilling effect of the cold walls.

HOLLOW TILE HOUSE COOLER IN SUMMER

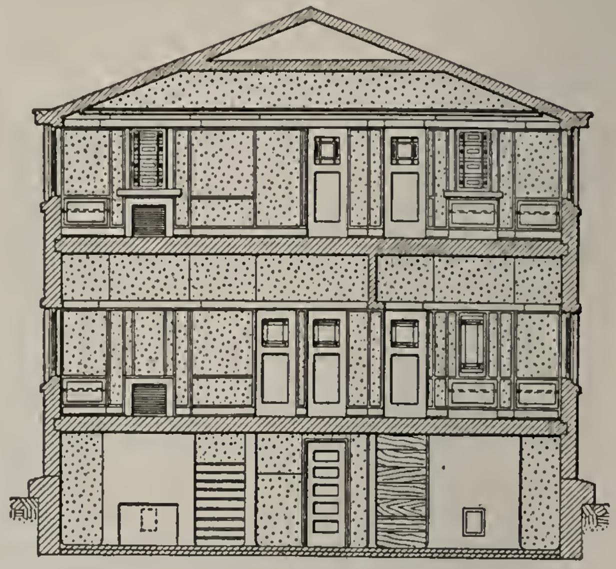
During the hot summer months this condition is reversed, the solid walls being heated by the warm outside air, which in turn heat the air on the inside of the house, making it a less comfortable place in which to live. In a hollow tile wall, in which a large volume is given over to insulating air spaces, a minimum of heat or cold is permitted to pass through the wall. This being the case, less heat is required to keep the inside of the house warm in winter, because there is no loss of heat through the walls, and in the summer, the cool night air can easily be retained in the house during the day, because the heat from the warm outside air cannot penetrate the wall of hollow tile.



Vertical Longitudinal Section of the Bovee House at Evanston, Ill.

It does not, however, follow that because such a wall is largely made up of air spaces, that it is an unfit construction, owing to a lack of strength. The proof is sufficient and conclusive that a hollow tile wall will carry any strain imposed upon it in a house of ordinary construction. Where a hard burned tile is used, it is not unreasonable to expect it to bear a load of fifteen hundred pounds to the square inch—a weight which is not even approached in buildings six stories in height.

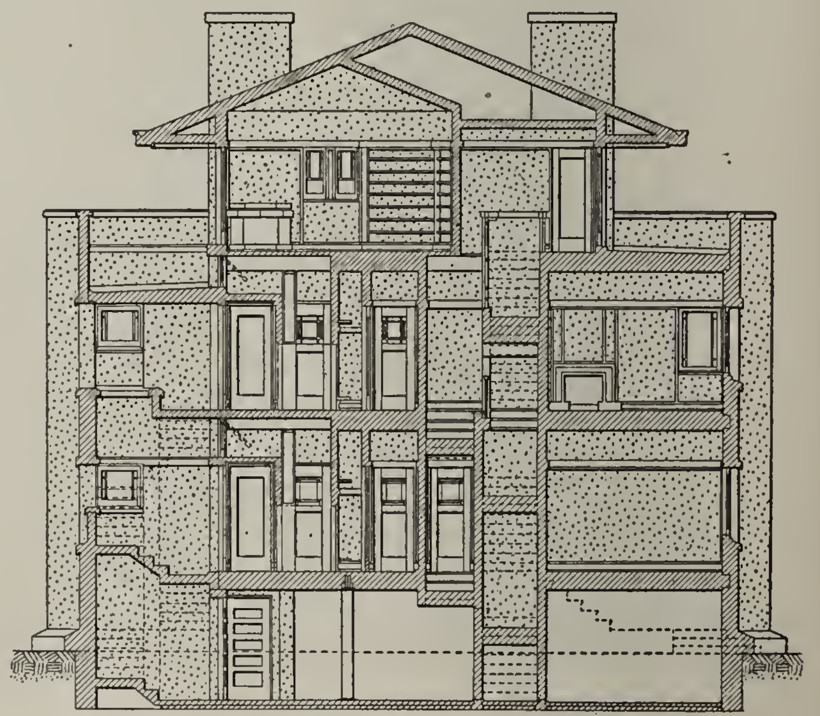
A disagreeable feature of the two-apartment house, and in fact, of all apartment buildings, and one which demands constant vigilence for sanitary reasons, is the presence of vermin. The coming and going of tenants makes the receiving of these pests possible at any time. Where the owner of a two-apartment building occupies one of the apartments, this menace strikes closer home. In buildings as usually constructed, studding or furring and lath are used to receive and hold the plastered wall. It is behind these walls and in the spaces provided by this construction that vermin thrive and multiply most rapidly. Where hollow tile is used, the plaster can be applied directly to the surface of the tile which is grooved to receive and hold it. This construction eliminates the breeding place of vermin, making their existence practically impossible and their extermination easy.



Cross-Section of Bovee House Through Living and Dining Rooms

APPLYING PLASTER DIRECTLY TO TILE WALL

The question has been raised by many builders as to the advisability of applying plaster directly to a tile wall because of the possible presence of dampness. The contractor above mentioned, who built his own house of hollow tile, states that although he has watched very carefully for signs of dampness or discoloration on the plastered and decorated walls, he has failed to find any. It is not uncommon for building tile to run as low as ten per cent in absorption. Just how this feature of the tile compares with other materials may be realized more vividly when it is known that ordinary common-brick absorbs all the way from twenty-five to thirty per cent of its weight when immersed in water. In hollow tile construction, the creeping up of moisture from the foundation or its absorption from the outside air or rain, is

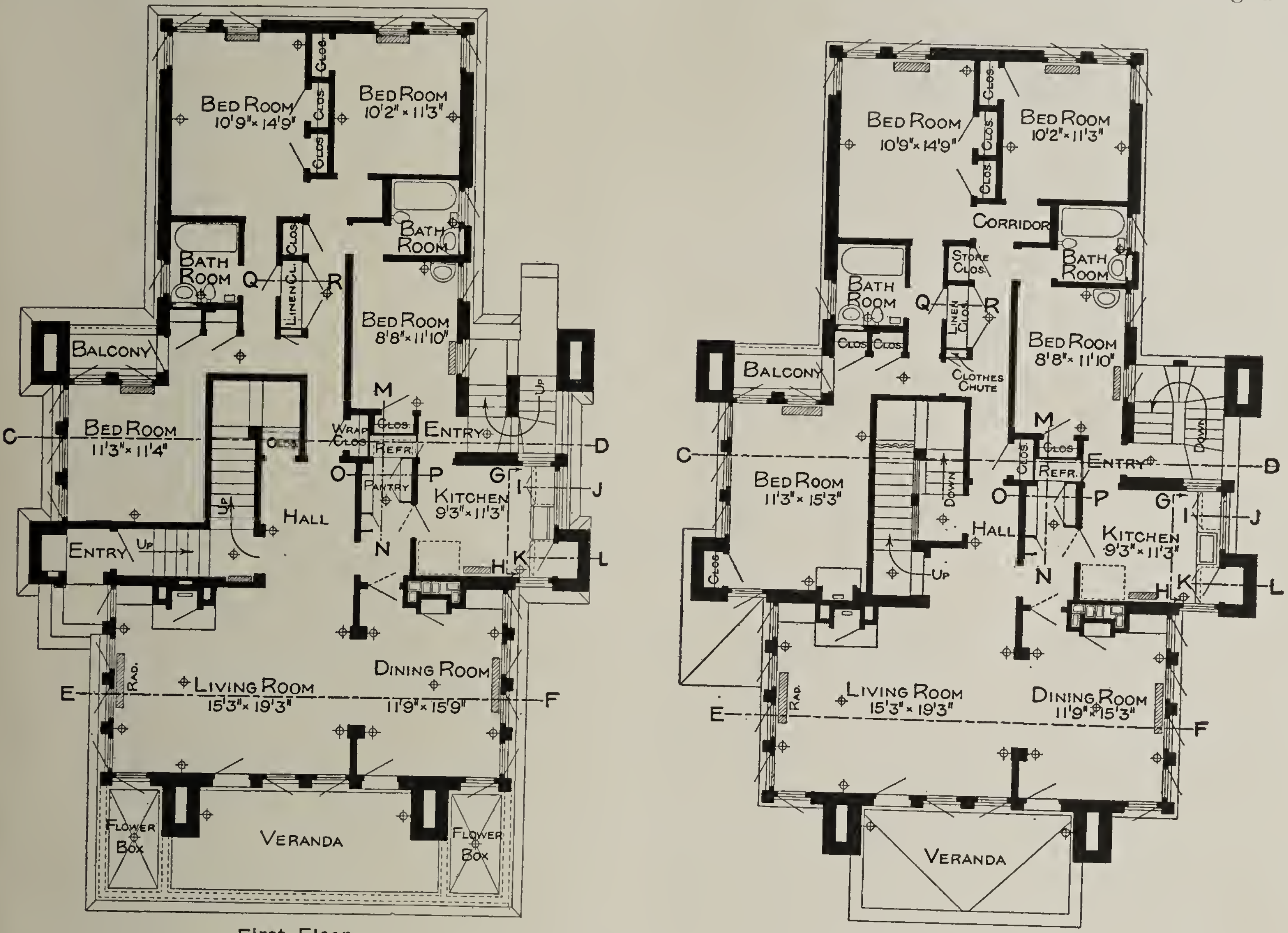


Cross-Section of the Bovee House on Line C-D, Shown on the Floor Plans on the Opposite Page eliminated because of the imperviousness of the tile. Also the fact that the inside tile wall always assumes the same temperature as the interior of the house, while the insulating air spaces prevent the outside air from cooling the inside wall and thus condensing the moisture present in the inside air on the walls, is accountable for the total absence of "sweating" on the hollow tile wall.

STUCCO AS A FINISH

Where stucco is used as a finish, it is usually applied directly to the surface of the tile which, like the interior wall, is grooved to receive it. In this way an everlasting bond is formed between the stucco and the wall of the building, making a covering that will last as long as the house.

Aside from the many advantages of hollow tile in the construction of the two-apartment building that appeal to the man who is investing his money in this type of building, are those which mean dollars and cents to the contractor who is erecting the building.



First Floor

Second Floor

Floor Plans of the Bovee House at Evanston, Ill.

Because of the size of the unit, hollow tile lays up much faster than brick. In fact, from observations on several different jobs, it has been found that a mason can lay up in hollow tile the equivalent of from four to six thousand brick per day. When it is considered that the average bricklayer does not lay more than twenty-five hundred brick when he is working hardest, and with the high wages demanded by this class of labor, this increased capacity amounts to no mean saving on a job of hollow tile, no matter what may be its size.

HOW TO SECURE HOLLOW TILE JOBS

It is surprising, but nevertheless a fact, that many contractors know little or nothing regarding the successful handling of a hollow tile job. For this reason they are not able to "land" an operation of this character when it comes by chance, because of their inability to figure closely enough, which in turn is due to lack of knowledge on the subject.

A case is in mind in which a Chicago firm of contractors for a long period was unable to secure any hollow tile jobs, because they could not figure accurately enough on this class of work as could other contractors who had some experience with it and who knew just where it would save money and enable them to get the work at a profit. This firm was not only unable to secure any of the hollow tile work, but became embittered toward it and substituted other types of construction wherever possible. They were finally persuaded to look into the use of hollow tile more closely, and after erecting a few buildings using this material, they became expert in estimating that class of work. During a recent period of building depression, this firm enjoyed a season of prosperity because they were able to secure several jobs of hollow tile at a good profit.

The use of hollow tile in residence construction has long since passed from the experimental stage. It has come to stay and like all other recent improvements in building construction, is rapidly gaining in popularity. Its economic features alone are sufficient to warrant a most careful investigation on the part of every contractor with a view of acquainting himself with the essentials of doing successfully and profitably any job involving this construction on which he may bid.

The building public is demanding more and more the use of hollow tile, especially for homes and residences, and the contractor who is equipped to take care of that class of work, is the man who will reap the profits.

Some Facts About Koalin

An Interesting Discussion of the History, Uses and Process of Preparing Domestic China Clay

By Wilson W. Hughes

Courtesy of "Mining and Scientific Press"

THE TERM "CLAY" covers a wide range of material. Clays differ in origin, mineral and chemical characteristics; they all exhibit plasticity when wet and become hard when dried naturally or artificially. They have been described as "heterogeneous aggregates of hydrous or anyhydrous aluminus silicates, free silicates and ever varying quantities of free iron oxides, calcium and magnesium carbonates, all in finely comminuted conditions."

The ordinary clays used for brick, tile, drain tile, terra cotta, etc., are found in abundance in the United States, but high-grade white clays, known as kaolin or China-clay, have not, as yet, been developed in sufficient quantity to keep pace with their use in the manufacture of porcelain, china or paper. The following figures, taken from the "Mineral Resources of the United States" speak for themselves:

KAOLIN MINED AND SOLD IN THE UNITED STATES

	Short tons.	Value.
1905-1913 (China-clay)	320,440	$2,427,023
1905-1913 (paper-clay)	795,997	3,607,408
Total	1,116,437	$6,034,431

KAOLIN IMPORTED INTO THE UNITED STATES

	Short tons.	Value.
1907-1913 (both kinds).........	1,732,150	$10,526,157

Therefore, the imports for seven years exceeded the production for nine years by 606,713 tons, valued at $4,491,726. The actual difference in favor of the imports for 1913, the last year on which these figures are available, was 113,495 tons, valued at $818,559.

That this country is now (June, 1915) dependent upon Europe for sixty per cent of the kaoline used here, is more interesting because English potters imported it from North Carolina nearly two hundred years ago, for use in the manufacture of chinaware. Now the exports of kaolin from the west of England are closely approaching the million-ton mark, if not exceeding it, every year.

Barber says, ("Pottery and Porcelain of the United States") in regard to the export of kaolin from Carolina: "It was obtained in the Smoky mountains by the Cherokee Indians, who called it unakah (meaning white) which was their name for the Smokies. It is still called 'unakah' in Mitchell county. English potters were using China-clay from this country previous to the middle of the last century (1700)."

In 1744 a patent was granted in Great Britain to Ed. Heylyn and Thos. Frye for the manufacture of chinaware. In their specification they state that the material used in their invention "is an earth, the product of the Cherokee nation in America, called by the natives *unakah.*" In 1878-79 a Mr. Goss, of Stoke-on-Trent, in a series of notes states: "This 'unakah'—the produce of the Cherokee nation—is decomposed granite rock, the earth or clay resulting from the washing of the rock being the decomposed feldspar of that rock. It is curious that it should have been imported from among the Cherokees when we have mountains of it so near as Cornwall, unknown, however, until Cookworthy discovered them in 1768." The Cookworthy referred to was familiar with American clays as early as 1745, for he is quoted as writing in that year: "I have lately with me the person that hath discovered the china-earth. He had samples of the chinaware of their making. T'was found in the back of Virginia where he was in quest of mines. Discovered both petunze and kaulin. 'Tis the latter earth he says is the essential thing. He has gone for a cargo of it, having bought the whole country from the Indians where it rises." Josiah Ledgwood also imported china-clays from both Carolina and Florida into England.

The origin of the word "kaolin" as used to designate the high-grade white clays of commerce, was due to the mistaken idea that the clay used by the Chinese in the manufacture of porcelain was called kao-ling (meaning high ridge), from the district in which it was obtained. This however was not the case. T'ang Ying, director of the Imperial factory at Ching-te-chin in 1743 states: "Those of pure white color and fine texture are used in the manufacture of bowls and vases of egg-shell pure white, and white and blue porcelain. Besides, there are several other kinds of earth called kao-ling, yu-hung, and chien-tan, all produced within the limits of Jaochow. These are only used for mixing with the first named, or in the fabrication of coarser ware." The name now, however, is universally accepted as signifying the purest varieties of clay known. They consist almost exclusively of alumina silicate and water, and are an impure form of the mineral kaolinite, which is represented by the formula $H_4Al_2Si_2O_9$. They exhibit less plasticity than other clays, becoming pulverulent and of a white or creamy color when dry.

The chemical composition is shown in the following table:

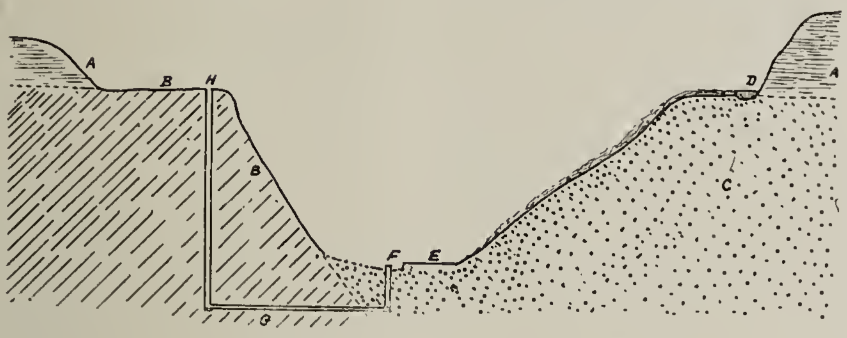
Constituent	Natural material from Ching-te-chin	From Ching-te-chin used for blue ware	English (Cornish) china-clay	French Clay, St. Yrieux	Hockessin, Delaware	Kaolinite
Silica	73.55	73.55	73.57	46.68	48.73	43.10
Alumina	21.09	18.98	16.47	36.92	37.02	36.92
Ferric oxide	....	....	0.27	....	0.79	....
Lime	2.55	1.58	1.17	....	0.16	....
Magnesia	0.15	1.08	0.21	0.52	0.11	....
Potash	....	0.46	5.84	0.58	0.41	....
Soda	......	2.09		....	0.04	....
Water	2.62	1.96	2.45	13.13	12.83	20.07

All clays are of secondary origin. They are the result of the breaking up of rocks and minerals, with consequent aggregation and concentration of the less soluble residue. Silicate of alumina, being one of the most insoluble substances known, is the chief constituent of such residues. Such an aggregation, if remaining on the spot where the disintegration of the original rocks took place, is termed a "residual deposit," but if it is transported by water or glacial action to another locality, it is called a "transported clay."

Kaolin deposits occur almost invariably as residual clays. They are the product of the disintegration of feldspathic rocks, in which the decomposition of the feldspar plays the most important part. The term used to describe the action is derived from the product, and the word kaolinization has become part of the English language. The cause of kaolinization has been ascribed to various agencies, atmospheric and hydro-thermal, but I hold no brief for either contention or their sub-divisions. Whatever the original cause, the fact remains that the action.on the feldspar may be shown as follows:

	SiO_2 %	Al_2O_3 %	K_2O %	H_2O %	Total %
Orthoclase	64.56	18.29	16.85	....	100.00
Losses	43.24	....	16.85	....	60.09
					39.91
Takes up	....	....	....	6.45	6.45
Kaolinite	21.23	18.29	....	6.45	46.36

This alteration is naturally of varying degrees of intensity in any one place; the result is that any kaolin deposit is of irregular grade, and consists of an intimate mixture of quartz, undecomposed feldspar, mica, and other minerals in addition to the aluminum silicate contents. Partly altered country-rock is also found. In the China-clay deposits of the west of England this is known as china-stone or petunze. Such deposits may be of any width and thickness and are usually covered by an overburden of subsoil; this also varies in thickness, and the cost of its removal has an important bearing on the economic value of the deposit.



Section of China-clay Pit. AA—Overburden; BB—Undecomposed Rock; CC—Decomposed Rock; D—Washing Water; E—Sand-catch; F—Shaft Down Which Clay-bearing Water Drops to (G); G—Level Connected With (H); H—Pump-shaft Where Clay-Water is Pumped to Surface and Sent to Bottling Pits

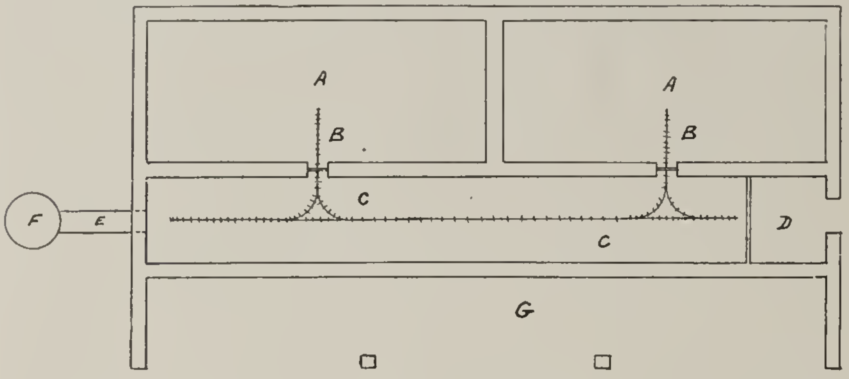
From the foregoing it can be seen that deposits of kaolin should be looked for in districts of highly feldspathic rocks, such as granite and gneiss. They may be expected to lie in depressions within such areas. Their presence is shown by the finding in marshy ground of a white clayey mud. Districts of low humidity are not so likely to contain them. When clay has been found, a weighed sample should be washed and the residue should not exceed 5.25 parts by weight to one of dried clay. The clay itself should not leave any residue on a 120-mesh screen, after brushing with a soft brush. The chemical analysis should approximate to one of the analyses given in the table above. As the refractory properties of clays seem to depend largely on the presence of alumina and silica, and freedom from constituents that are fusible or would combine with others to form a flux, it is necessary that a good commercial clay should be low in iron oxide and alkalies such as soda, potash, lime, and magnesia. Although iron is not possibly so detrimental as a flux, it is fatal to the ware, causing black spots on firing. Potash produces an incipient vitrification, which causes the ware to ring like a bell on striking. Therefore the presence of these minerals in large proportion unfits the clay for fine pottery work. At the same time it might be useful for other purposes. On firing a sample of the clay, it should be white, non-vitreous, free from specks, hard, and compact. Very often clay is colored by organic matter, but this color disappears on the application of heat.

After finding a deposit containing such a clay it is easily prospected by drilling or sinking pits to determine its area, average grade, and thickness. For the economic working of kaolin pits, and the production of a commercial clay, two things are essential: one is a good supply of water, and the other is ready transportation to commercial centers or the sea-coast. Assuming that the clay is found and that there is a plentful supply of water, the working of the clay consists essentially in the washing of the decomposed rock by means of a stream of water. The water takes up in suspension the fine clay particles, leaving behind the associated quartz, unaltered feldspar, etc. The clay-bearing stream is then conducted over shallow troughs where the mica is deposited, and thence to settling-pits in which it drops its burden of clay, being returned to the deposit to be used over again.

In actual practice the water is conveyed to the side of the clay pit and allowed to run down the face. The clay mixture is raked in the path of the stream, so as to obtain as thick a mud as is possible. The stream is passed into wooden bins with a perforated bottom in which the quartz and heavy residue is caught. The water, carrying the clay and mica in suspension, passes through the coarse sandy residue, and is then pumped into launders through which it passes to the mica-traps.

These traps are shallow troughs in which the velocity of the clay liquid is reduced, and the depth of the stream diminished. The mica settles and is retained, the suspended clay passing forward to the settling-pits. These pits may be close to the works, but in many cases the clay in suspension is carried through pipes or launders for long distances. This procedure is adopted when the deposit is at a distance from the railroad, as it is then possible to settle and dry the clay at the point where fuel and transportation are readily obtained. The water, with its clay burden passes into the settling-pits through vertical box-launders, perforated with holes. The delivery is therefore always at the bottom of the pit to start with, and as the clay settles on the bottom and accumulates in the pit the holes in the launder allow the stream always to deliver at the lowest point possible. The pits are usually circular and may be twenty feet deep. In these the water drops its burden of clay, the clean effluent being returned to the deposit to be used again. The water-cycle is continuous.

When the clay rises in any pit to the point where settlement is slight, the stream is turned off and the clay allowed to subside. It is then run into other pits where further settlement ensues, until it becomes a fairly stiff clay. From these it is transferred by means of cars onto a drying-floor. The "drys" or floors consist of fire-clay tiling, covering a number of parallel flues. The flues are connected at one end with the fire-grates and at the other to a brick stack. They are about fourteen inches wide and the tiles are sufficiently wide to span them from centre to centre, having a thickness of five to six inches over the firing end and reducing to two or three inches at the other end. These "drys" vary in length and width, but are usually one hundred and fifty to two hundred feet long, and up to fifteen feet wide. The clay is run upon this to a depth of nine to twelve inches at the fire end and about six inches at the stack end. The charge at the fire end will dry in about a day, but the other end may take three days. When the charge becomes plastic it is cut into rectangular blocks. This assists the drying process, and also is of help in shoveling the dried clay. When dry the clay is thrown off the side of the "dry" into a paved space that runs the whole length of the floor. Here it is packed into barrels for export or lies in bulk awaiting shipment. Where possible, the railroad track adjoins the side of the "dry" so that cars can be loaded direct. The fuel used for heating purposes is hard coal. A bituminous coal is detrimental, as the clay is likely to be smutted by it.



"Dry for China-clay (Plan). AA—Settling Tanks; BB—Track to "Dry"—Elevated Above Floor; CC—Drying Floor; Flues Underneath; D—Fire-grate End; E—Flue to Stack; F—Stack; G—Store for Dried Clay

The Cornish drying system as outlined above is, I believe, capable of much improvement. A large amount of the mositure in the clay percolates through the porous tile flooring and is converted into steam in the flues, as is readily perceived from the white cloud of steam that escapes from the stack. This surely cannot be the most economical method of evaporation.

The limits of this article will not allow of entering into these points of detail. It is many years since I have visited a clay works; the data I have may be slightly out of date, but the system as outlined is, I am told, in use at the present time.

China-clay is used principally in the manufacture of porcelain or china, and paper. China, or porcelain, is a mixture of kaolin with various substances; the mixture must be plastic enough to be worked into forms for ware. When burned it fuses sufficiently to give it the proper strength. The subject of porcelain-making is a complex one, and the reader is referred to the treatises on the subject for further details. Paper-clay must usually be pure white, but that of poor color may be re-washed and used. Wall-paper manufacturers employ it to give a smooth satiny finish. It is applied in the form of a thin size and then polished between brushes. As purity of color is essential for this purpose, only the finest clay can be used. In the manufacture of other papers it is used to give body and weight. Heavy wrapping papers contain about 5 per cent China-clay.

The kaolin-producing states of this country are Delaware, Georgia, North and South Carolina, Missouri and Pennsylvania. Discoveries have been noted in seventeen counties of California, but, with the exception of the Carbondale deposits, in Amador county, they do not seem to have been developed seriously. Kaolin from these beds has the following composition:

	Per Cent.	
Silica	48.9 to	60.00
Alumina	30.29	38.18
Ferric oxide	0.53	2.40
Lime	trace	0.50
Magnesia	trace	0.09
Alkalies	1.02	2.32
Water	8.05	8.95

The average composition, therefore, approximates that of the Delaware clays. The production from other western states is so small as to be negligible. I have not dealt with the cost of production in this country, as data on that point are difficult to obtain, and any figures would have a local value only. So much depends on situation, labor, transport, availability of fuel, etc., but it may be briefly estimated that the value of clay ranges from $3.66 to $7.50 per ton, and that with favorable conditions it ought to be produced for $1.55 to $3.25. This article has been compiled from notes extending over a period of years, supplemented by personal observation. I have not always been able to find the authority for some of the statements made, and if I have plagarized in any item it is unintentional on my part.

Cleaning Smoked Brickwork

Brickwork that has been stained by soot, which, settling on the coping of a wall, is afterward washed down over the brick, often fails to respond to ordinary cleaning methods. Dilute muriatic acid, "Pearline" and similar soap powders do not always accomplish results.

A writer in the "Painters' Magazine" suggests the following: Muriatic acid will not remove smoke stains, nor will soda or soda ash do it. Smoke stains must be removed by scrubbing and rubbing with the proper solutions. Mix one gallon of soft soap, two pounds of powdered pumice stone and one pint of liquid ammonia, thoroughly beating the mixture. After carefully dusting the brickwork, apply the mixture, that should be in the form of a soft paste, in a fairly thick layer. Use a fibre brush. Allow the mixture to remain on for not less than twenty minutes, then rub it on the brickwork with a stiff scrubbing brush, using plenty of elbow-grease.

Use a large sponge and plenty of lukewarm water to remove the lather, and then rinse with clear water. If convenient, use a hose for rinsing, and, if the process has been properly done, the most stubborn case of discoloration by smoke will be removed.

Substitute for Foreign Red Slip Clay Wanted

Among the clays which have formerly been imported from Germany, the export of which has now been forbidden by that government, is a red slip clay used in the manufacture of terra cotta. A firm which has been using large quantities of this clay in the manufacture of the above mentioned ware, and which has been depending upon the foreign supply, now finds itself facing a serious situation—that of having no suitable raw material for its product.

If any of our readers know where red slip clay is found in the United States and how its quality compares with the foreign clay, they will confer a great favor upon all concerned by writing to this magazine, giving whatever information they may have on the subject.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Tile Cracks in Drying

687. *Iowa—This plant has, ever since it started, been bothered with the tile cracking while it was in the dry sheds. We use surface clay, mixing the four top spades. The two top spades are a very dark clay and the two lower ones are yellow or bluish clay. They are mixed after removing about eight inches of over-burden. We use a ———— machine with a bridge just back of the dies, with a stem on it to hold the core or center piece. There is only about eight inches between the die and the bridge for the clay to unite and I have thought that a great deal of the cause of the cracking was due to this bridge cutting the clay up before it went through the die. I cannot believe that ours is a bad clay but do believe that the main fault is in the machine.*

Before answering this question it was necessary to write our correspondent asking for more information in connection with his process, particularly in connection with clay preparation and the answer follows:

My clay is hauled in the clay shed with cars and I keep one man in the shed to level it off as it is dumped, so that it will get mixed thoroughly. It is very wet now and I grind the broken tile in the sheds, using a dry pan and then mix the ground burned clay with the raw clay and this makes it stiff enough to insure the ware's coming from the machine sufficiently stiff to permit of its being handled. The clay is shoveled on to a belt or clay conveyor and is dumped from that into the crusher rollers which set above the machine. This machine is a pug mill and auger machine combined, consisting of an eight-foot pug mill with about three feet of augers. I depend upon the pug mill to do the tempering. When my clay gets dry enough I use water in the pug mill and would say that this water comes from the supply tank to the boiler. It is neither hot nor cold but just a little warm. When the clay is wet, as it is at present, I do not use any tempering water at all. You will understand that I use the dry pan only to grind broken tile, but do not use it in connection with the raw clay. The bridge plates in the machine are rough (corrugated). The tile crack lengthwise when run soft and when run very still, they have a few cracks which run around them. Some will check two or three inches into the end and others will crack clean through. I have some five-inch tile in the shed now that have cracked in three places and have come apart into three pieces. These cracks are exactly where the wings are on the bridge. It depends on the weather when they start cracking. If the weather is warm and dry, they will start cracking about the third day after they are put in the shed but if it is wet and cool, they will not crack until about the fifth day. As soon as I notice them starting to check, I put the men in the shed and turn over the tile end for end; this seems to help and stops any more from cracking, but this process is expensive, and if the tile are allowed to go too long without turning, there is an awful waste. I cannot say that there is any "safe" period when the tile do not crack, only as I have stated above. After the tile are in the shed (which is a natural air dryer with doors on the side to raise and lower) I leave these doors closed until the tile are well set and have started to dry; then I open the doors on the opposite side from the wind, but not on both sides, until the tile are about two-thirds dry. At that time I figure that if the wind is not too strong, it will not harm them to open the doors on both sides. It takes me from two to four weeks before the tile are ready for the kiln. Answering your questions as to the formation of the die, etc., would repeat what I have already said regarding the bridge which is that it sets about eight inches back of the die and that the core is fastened to it (the bridge). The augers are about three inches back of the bridge. The five-inch and six-inch are the worst sizes for cracking, although the other sizes crack a great deal more than they ought. The walls of my five-inch are three-quarters of an inch thick and the walls of the six-inch are thirteen-sixteenths of an inch thick. The tile are cut thirteen inches long and the shrinkage in drying is three-eights of an inch in diameter. The shrinkage in burning is one-eighth of an inch. This burning shrinkage is increased in the case of the tile that are set right around the fire boxes and where, as a rule, the tile are burned black. Here the five-inch will shrink one-quarter of an inch and the six-inch will shrink just a little more than this. The augers I am using at the present time were new in April of this year and I estimate that they have not made more than one hundred thousand tile. My five-inch and six-inch dies were new in the spring of nineteen-fourteen. The five-inch die has made about two hundred and twenty-five thousand tile and the six-inch die has made about one hundred thousand. Regarding the other dies, I fear that I could not say how old they are or how many tile they have made.

A short time ago, Professor Stull (then of the University of Illinois) wrote in connection with an answer that he made through this department that it was often-times as difficult and practically impossible to give a remedy for a manufacturing defect as it was impractical, and generally impossible, for a physician to prescribe for an ailment that was described to him by mail. The patient has a way of telling all of the symptoms excepting the one which will lead to the correct diagnosis.

In a case of that kind the doctor can do but little more than hazard a guess and since our correspondent has gone to the trouble of describing his problem so minutely, "Brick and Clay Record" will hazard a guess and it is that the trouble lies largely in the thickness of the walls of the tile. We would suggest that the five-inch tile be reduced to one-half inch thickness (burned) and the six-inch tile to be between nine-sixteenths and five-eighths (burned). This thickness gives sufficient strength and allays in great measure any tendency toward unequal drying. It is, as a rule, unequal drying that causes the split cracks along the line of the three core supports or the spider bridge.

It would be well to wrap a few wires around the bridge plates in order that the clay passing into the die may be torn up and the chances for rebonding increased.

There is, from the description that has been given, a great likelihood that the clays are not thoroughly mixed as they come from the pit. One man in a dry shed may be capable of doing this work but there is a good chance that he is not doing it. If it were possible to install a mechanical clay mixer, this machine would be very liable to pay for itself in a very short time, if not in labor saving, then in better ware.

There seems to be a hit-and-miss method in connection with the addition of dry ground clay to the wet clay and there is a great question as to whether the same results will be obtained in drying and burning ware that is made from three different clay propositions. This correspondent has, first; semi-wet clay that is used without the addition of grog and without tempering water; second; wet clay that is mixed with grog; third; dry raw clay that has to be mixed with tempering water. Any number of experiments could be made and improvements added to a drying process but when they were all finished, they would not give any definite results for the reason that it would be hard to calculate the basis—that is, the exact character of the clay upon which the experiments were made. This takes us back to the question of, in the first place, a proper clay mixing machine and it looks as though this plant could use to advantage some inexpensive clay storage system which would provide for the clay's being brought in and stored in an open shed where it can be air dried. This shed could be so arranged as to be in itself a clay mixing apparatus. There is no doubt but that it would improve the clay to be weather slaked and weather dried before going to the crushing rolls.

In this way a mixture will be assured that is reasonably uniform, not only as to the proportions of the clays that compose it, but the dryness of these clays. This condition will insure the amount of tempering water—that is, no more tempering water will be required at one time than at another and, as a consequence, some dependency can be placed upon the action of this tempering water—a matter that is very much in doubt at the present time.

There is reason to believe that the nose of the auger is too close to the bridge and it would be well to place a wooden washer about two inches think between the bridge and the die support (or head-piece) and the barrel of the machine. This will shove the die about two inches farther from the auger then it at present is and the pressure will not be so intense on the clay passing the bridge. This will have a tendency to prevent the "shining up" of the clay and so help it to knit together as it passes through the die.

There is also a possibility that the forms on your automatic cutter may be too small and in this way, the tile may be squeezed and bridge cracks open up. The same may happen in handling.

Another point is that your tile should be just hard enough to handle safely; too stiff is just as injurious as too soft.

Best of all—since this correspondent says that the trouble in question has existed for years, (and it is to be presumed that during these years the yard has had several superintendents) much could have been saved by the employment of an expert "trouble doctor" several years ago. Too many owners of clay plants and too many superintendents are disinclined to admit that they have met with a problem that is entirely beyond them. They have a way of experimenting and of trying to do away with the trouble without expert advice and in this, the man who prefers to dose himself with patent medicines, rather than submit to a thorough medical examination by an approved practitioner, they meet with but little success and an organic disease grows worse with the years. In this case the "organic disease" seems to be eating its way into the bank account and there seems reason to say that the hiring of an expert, even though it necessitate the expenditure of a sum that would be several times as great as that paid to the superintendent, would stop a leak which is seriously threatening the well being of this plant.

The Question of a Second Machine

695. *Iowa—We have a steam dryer and our clay, while very slow to dry, works all right if the dryer is not rushed. We are considering the advisability of installing a second machine so that we could run part time on drain tile or hollow block and part time on brick. At present if I change the machine die from hollow ware to make brick, I get too much brick in the dryer. If I could keep a quantity of drain tile, hollow block and brick in the dryer I could take them out and burn them as I wanted to—the tile soft and the brick and blocks harder. I have a forty H.P. motor which gives just enough power to run the one machine. Could I run it on a main shaft and then over to the two machines, running only one at a time? In other words, does running to a line shaft weaken the power?*

If your plan is to obviate any loss of time in changing the dies then it is an excellent scheme to have two machines. Otherwise the only advantage that you would get is that you would have some insurance against shut-downs, due to either of the machines breaking down. Another advantage is, possibly that you could adjust the machine that made your hollow ware so as to work better on that particular kind of material and you could certainly get a more exact adjustment on the machine which worked on brick alone. In other words, you could make both of the machines "specialize" on the product that they were producing and in this way get a great economy out of both.

The question of setting one ware on the other in the dryer in such quantity as to allow you to draw one kind of ware or the other would not, according to our way of thinking, be settled by the installation of a second machine. It seems to be more a case of calculating just what ware you want to set and how much of it, and then making just that amount of ware. Certainly this situation would not be improved by having a second or even a third machine—that is, unless you are using a differently tempered clay, or a different clay altogether for the various kinds of ware that you are making. In that event, different pug mills would be an advantage as well as different machines and dies.

In belting your motor to a main line shaft and then stringing two belts—one to each machine—you have an additional load to carry, due to the friction of your shaft on its bearings and the power required to turn over the additional transmission machinery. The power dropped should not exceed five per cent, or approximately two and a half H.P. Therefore, unless you can safely overload your 40 H.P. motor, your available transmitted power would be about 37½ H.P.

Maximum Temperature for Tunnel Dryer

698. *Ohio—What is the maximum temperature that has been attained in a tunnel kiln in drying hollow ware?*

The highest safe temperature reached in a tunnel kiln in drying hollow ware, that we have ever known, is 300 degrees Fahrenheit. This temperature was maintained in the section of the tunnel which immediately precedes those that were slightly cooled by the opening of the wickets as the cars passed out.

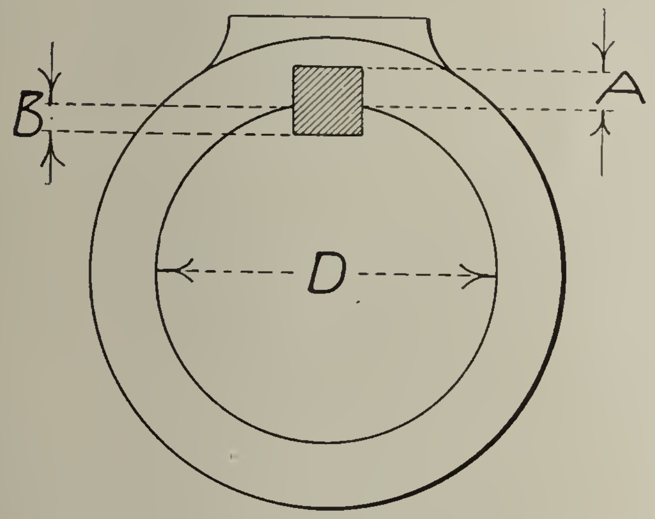
The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

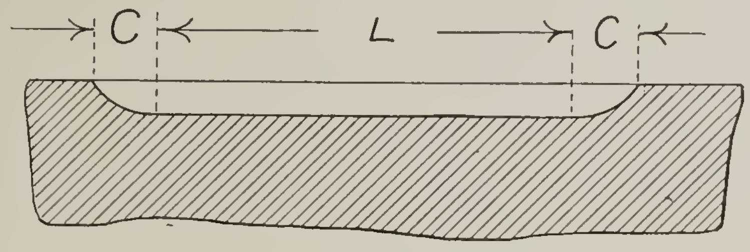
A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Keyseat Dimensions for Shafts and Pulleys

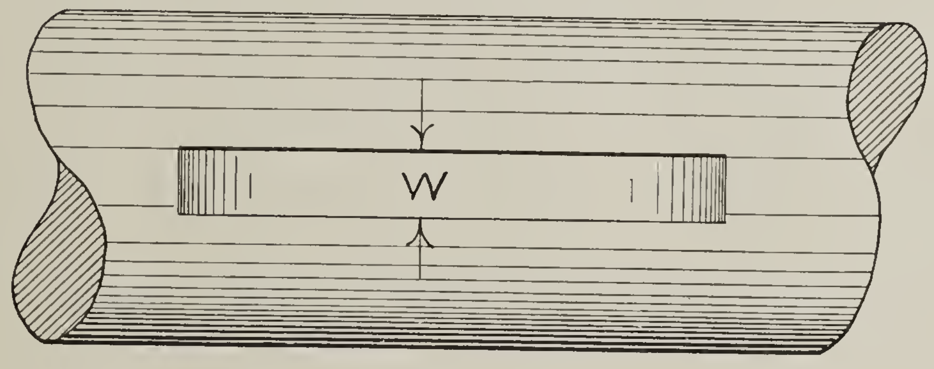
The following diagrams and table show the dimensions of the keyseat in inches required for various sizes of shafts:



End View of Shaft and Hub of Pulley Showing Key



Section of Shaft



Plan View of Shaft

D=Diameter of Shaft.
W=Width of Keyway.
A=Depth in Hub of Wheel or Pulley.

B=Depth in Shaft.
L=Length of Keyway.
C=Curved Portion Left by Milling Cutter.

Diameter of Shaft in Inches	Keyseat Dimensions in Inches			
	Width	Depth		
	W	In Hub of Pulley A	In Shaft B	Curved Portion C
⅞ to 1¼	¼	⅛	3/32	1
1 5/16 to 1⅜	5/16	5/32	⅛	1
1 7/16 to 1⅞	⅜	5/32	⅛	1
1 15/16 to 2⅜	½	3/16	5/32	1
2 7/16 to 2⅞	⅝	¼	3/16	1¼
2 15/16 to 3⅜	¾	5/16	7/32	1½
3 7/16 to 3⅞	⅞	⅜	¼	1½
3 13/16 to 4⅜	1	7/16	¼	2
4 7/16 to 4⅞	1⅛	½	9/32	2
4 13/16 to 5⅜	1¼	9/16	5/16	2
5 7/16 to 5⅞	1⅜	⅝	11/32	2
5 15/16 to 6⅞	1½	11/16	⅜	2
7 to 8⅛	1⅝	¾	7/16	2
8¼ to 9½	1¾	13/16	½	2

Preliminary Clay Crushing

An eminent medical authority calls our attention to the fact that our stomachs have no teeth, which is another way of saying that it is well to carefully chew our food before bolting it. A direct analogy finds a place on practically every clayworking plant in a combination (or lack of combination) of the jaw crusher and the dry-pan. The dry-pan may be able to "digest" large lumps of clay or shale but it will wear itself out in trying to do this and will not provide as large an amount of prepared clay as it would were the lumps to be fed into it after they had gone through the process of being "chewed" in the crusher.

It is only another case of having the right machine in the right place. The jaw crusher is equipped to do certain work in less time and with less power consumption than the dry-pan and in turn, the dry-pan is equipped to do certain work which naturally the jaw crusher cannot do.

Set both machines doing the work for which they are fitted and the general health of the plant will be materially improved.

A Good Tip for You and Your Men

A picture often makes a deeper impression on a man than a thousand words of printed matter—and it takes less time to "read" a picture, than it does to read a column of type. Next in strength of punch is the word picture.

Here is given a word picture that it would be well for you to cut out, and send to your local printer with an order to make you a dozen or more—depending upon the size of your plant—not less than 8 in. by 11 in., and preferably larger. Have them printed on cardboard, and then *nail* them up, where the man who reads and feels the message cannot tear it down because it shows him just the kind of a fool he is.

This is the word picture—it is reproduced from the Illinois Steel Company's "Safety Bulletin"—a life and limb saving magazine that is proving a good investment for the steel people.

Booze Fighting

For the married man who cannot get along without drinks, the following is suggested as a means of freedom from bondage to the saloons:

Start a saloon in your own house. Be the only customer (you'll have no license to pay). Go to your wife and give her two dollars to buy a gallon of whiskey, and remember there are sixty-nine drinks in a gallon. Buy your drinks from no one but your wife, and by the time the first gallon is gone she will have eight dollars to put into the bank and two dollars to start business again. Should you live ten years and continue to buy booze from her, and then die with snakes in your boots, she will have enough money to bury you decently, educate your children, buy a house and lot, marry a decent man, and quit thinking about you entirely.

Are Fire Bars Necessary?

Not that we agree with all of the contentions made, but because some of them are well worthy of thought, we reprint the following article, which appeared in the June issue of the "Brick and Pottery Trades Journal," an English magazine that is a valued contemporary:

In some kilns the fireplaces are fitted with bars so as to form grates, but in other kilns the coal is placed directly on the solid bottom of the fireplace. In each case the brick or other ware in the kilns are burned to the satisfaction of the manufacturers, so that the question naturally arises "Are the firebars necessary?" Those who do not use them claim that a solid bed uses less fuel whilst producing the same amount of heat; those who use grates consider that the coal will not burn effectively without an access of air from below, a feature which is almost impossible with grateless fireplaces.

As in many other things in clayworking, the real truth lies not solely with those who invariably use grates or with those who do not. In other words, so much depends on the fuel, the fireplace and the ware to be burned. For instance, in a continuous kiln the use of a grate does not effect any saving of fuel, but it has the advantage of enabling the fireman to regulate his heat better and it prevents the accumulation of half burned fuel on the floor of the kiln.

If the coal is small and lies closely together it is better to burn it on a grate, the bars being made slanting at an angle of 45 degrees when a very bright fire is needed and more nearly horizontal when a duller fire is satisfactory. The bars should be sufficiently close not to allow any coal to pass between them, though the best distance between them must usually be found by trial, about one-eighth of an inch when the bars are new is often suitable. If coarser or lump coal with little tendency to coke is used, the fuel may lie so loosely that no grate is needed, as the lower portion of the fire will act as a grate. It is only in exceptional cases that such coarse fuel is used in kilns, so that if the burning is properly managed the use of a grate will generally effect a saving in fuel.

If the burner is careless or does not know how to handle his fires properly he may waste more fuel with a grate than without one, as the grate permits a larger proportion of air to come in contact with the fuel. In fact it is the differences in management rather than anything else which determines the variation in results which have been reported from time to time by those who use grates and those who prefer solid beds of fuel.

If the bed of fuel is sufficiently deep the fireplace is converted into a kind of gas producer and the use of a grate is less necessary as the fuel does not burn on the bottom of the bed but about the center of it, though even in producers it is becoming increasingly common to supply grates as they secure a better control over the rate at which the fuel is burned. This is another instance of the different results secured by careless or skillful management—the indifferent burner wastes more fuel with a grate, but the skilled fireman finds that a grate enables him to get better results and actually effects a saving in the coal.

With these facts in mind it is clear that the question at the head of this article will be answered differently by different burners according to their skill and to the kind of fireplace to which they are accustomed, though the most skilled men will usually be in favor of grates, especially if the bars are fairly close together.

If the writer were compelled to choose between a fireplace with grates and one without he would consider whether a skilled burner would be employed. If so grates would be advised, but otherwise the use of a deep fireplace with a solid bottom would be regarded as a necessity. Unfortunately the latter case would require a better coal—so that anything saved on a "cheaper" man's wages would be more than lost in the greater fuel cost.

There has been a great deal of nonsense written about the merits of grateless fireplaces in kilns; their real value, as stated above, lies in the resistance they offer to partially skilled firemen to waste fuel excessively.

Less Space for the Coal Pile

An unrestricted coal pile covers a great deal of ground. To keep the roadway clean it very often happens that the pile must be limited on one or more sides. More or less permanent fences or retaining walls are sometimes constructed. Perhaps more often the pile is kept within bounds by making a crude wall of the larger lumps.

One concern uses simple anchor boards for keeping the pile from spreading at the base. These in effect form a board fence set with a top inclined toward the coal pile and anchored from within the pile itself by rods which run into an anchor timber. This anchor timber is well buried in the coal three or four feet near the center of the pile.

Such a method has advantages over a permanent wall in that it can be readily moved to any place needed when the coal is to be piled again.—"Factory".

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

The Brickmaker and the Complete Building Show

It is the purpose of this magazine to keep the Complete Building Show, which is to be held in Cleveland, Ohio, some time early in 1916, very prominently before the eyes of clayworkers, from now on until the day the show opens. In place, however, of publishing an article at this time, we are going to urge the careful reading of the following letter, which comes from the facile pen of Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination. It is dated July 31, and reads:

Once there was a fellow who attended all the boxing matches and passed out caustic remarks about the athletes in the ring.

"I could beat up both of those guys with one hand tied behind me," he said to the man next to him.

When one of the fighters put over a knockout the hot-air artist remarked: "Huh! That wasn't any wallop at all—I could stand on the edge of Niagara Falls and take that without wabblin'."

Before the pugilistic season was half over the noisy one became a pest, and his bosom companions arranged a little preliminary "go" between him and one of the young amateurs.

All the time the windy fellow had been standing against the ropes telling others (who didn't care to hear) what a whale of a punch he had, the little amateur was out back of the barn punching a dummy.

When the two got together two blows were struck—one when the youngster hit the boaster, and the second when the boaster hit the floor.

The moral is: "You can't always tell until you try."

All of which may apply to any building material that believes it unnecessary to exhibit in the Complete Building Show, to be held in Cleveland next February.

The doors of this show will be open to every sort of building material. It will be the first opportunity for competitive display ever given in the United States. All materials and methods of construction will be lined up, side by side, with the public in the position of judges ready to decide which is the safer, the more economical, the most beautiful. The public may be depended upon to act upon this judgment in future building.

Those who stand on the sidewalk out in front of the Coliseum and say that they have a better material than any that is shown on the inside will not carry much weight with the judges—meaning the hundreds of thousands of prospective builders who will attend The Complete Building Show.

The "American Lumberman," in its issue of July 3, carries an eminently fair and much appreciated story under Cleveland date, upon the show. I regret that some of the lumbermen interviewed by the journal's reporter went on record as not being interested in the show. David W. Teachout, of the A. Teachout Co., is a director in the show company, and will be an exhibitor in the show. Two other concerns, whose chief business is with timber construction, are stockholders.

It is the lumbermen's opportunity, just as it is the clayman's and cement makers' and the metal products makers' opportunity. We are assured that the permanent materials will be well represented in the exhibition, and I do not doubt that before the space is disposed of many wood products concerns will recognize the advantage of putting their material before the throng of builders and men of the trade who certainly will attend the show.

While the S. A. F. E. put this movement under way that organization is not directly concerned with the management of The Complete Building Show. The S. A. F. E. members, who are stockholders and directors of the show company, have taken a broad view of the enterprise, and its first aim is to stimulate the interest in good building. As we say in all our publicity, it is "a show for the man-about-to-build," an expression borrowed from the editor of "Brick and Clay Record." The show will be educational, and will show the best in all materials that properly enter into the construction of buildings of every type.

Those concerned in the success of this enterprise appreciate the unselfish support your magazine is giving it. Any man in the clay trade who does not approve the policy of your journal is standing in his own light. I cannot too strongly approve your recent editorials urging the clayworkers to devote all their energy to boosting their own product, and not waste good time and money "knocking" the other fellow's stuff.

This is the policy of The Complete Building Show. No objectionable display will be permitted. Every material may go as far as it chooses in demonstrating its own good points. Let the man-about-to-build make his own comparisons.

All of which is submitted to the good sense of the man behind the bank roll in the clay plant. He has said, and others have said for him, that his material is far and away better than any other kind of material offered for the same purpose. The world grows—products in every line improve—what progress is being made in the burned clay industry?

Regarding Brick Sidewalks

Perhaps some of our readers will be able to assist Carl F. Kneisel, secretary and treasurer of the Sheridan (Wyo.) Brick & Tile Co., who asks a question in his letter of August 9. He writes:

We note in your issue of Aug. 3 an article relative to brick sidewalks and as we have just begun making a sidewalk brick we thought you might be in position to give us some idea as to the best and cheapest way of laying same. The writer personally has 160 feet of sidewalk to put in, in front of his residence. Although the city ordinances specify concrete walks, the writer has received permission from the City Commissioners to put in this stretch of walk with brick, in order to enable this company to demonstrate the advantage and beauty of a brick sidewalk.

We are anxious to learn the best way of laying the brick and also what is best to do to keep weeds from coming up between the joints. The party who brought up the fine points in defence of brick walks in your magazine might have a suggestion that would help us.

Brick sidewalks have so many advantages, and are so common in many parts of the country that there must be a "best" way of laying them, and a sure preventive of weeds. Here is a chance to do a fellow brickmaker a lasting service by writing a letter and spending two cents for a stamp.

Freight Tariffs and Troubles

Devoted to Information and Advice on Freight Tariffs and on Cases Before the Interstate Commerce Commission

THIS DEPARTMENT, through its Freight Traffic Counsellor, has just brought to a successful conclusion a case which was filed with the Interstate Commerce Commission against the Chicago & Eastern Illinois Railroad Company and the Cleveland, Cincinnati, Chicago & St. Louis Railway Company, involving the rates on drain tile from Woodland, St. Anne, Beaverville and Kankakee, Ill., to various points in Wisconsin, Minnesota and the northern peninsula of Michigan.

For a number of years, both of the above roads maintained low commodity rates on drain tile in carloads from and to the points mentioned. On March 10, 1915, these roads filed tariffs with the commission, proposing to cancel these special commodity rates and substituting class rates only, which would have been the means of advancing the rates from one to ten cents per hundred pounds, and in a few cases, more than the amount last named.

A formal protest was filed in behalf of the Woodland (Ill.) Clay Company with the Interstate Commerce Commission, asking that this proposed increase in rates be suspended, and at the same time application was made for a formal hearing before the Commission in order that our attorney could appear before them and argue the unreasonableness of this proposed advance.

The suspension requested was granted and the case was formally heard at Chicago, on May 11, 1915, at which hearing the commission was shown that if the increases were allowed, the plants of our clients would be shut out entirely from this northern territory, and the expense and labor to which they had gone in developing that market would be a total loss. At the same time it was proven that the present commodity rates, which have been in effect for so many years, were just and reasonable, and profitable to the carriers.

On July 3, 1915, the Commission handed down its decision, sustaining our contentions, with the result that the complainants' plants will continue to enjoy the present low commodity rates on their product to the territory in question.

During the past year a number of the railroads, especially those operating east of Chicago, have cancelled their commodity rates on drain tile, placing them on the much higher class rate basis. So far as is known, no protests have been filed with the Commission regarding these advances by any of the plants affected. Therefore, the favorable decision that has been received in the Woodland case creates a precedent that should have a favorable effect on any case filed with the Commission by any plant that finds itself at a serious disadvantage, due to its previous drain tile commodity rates having been cancelled.

COMMISSION HEARS NEW YORK BRICK CASE

A hearing on the complaints of brick manufacturers against the Boston and Maine Railroad Company, alleging excessive freight rates on brick shipments to important points, was held on July 16 by Interstate Commerce Commission Examiner Burnside in the Federal Building at Albany, N. Y. The complainants are the Troy (N. Y.) Brick Company, the Mechanicsville (N. Y.) Building Brick Company and the Duffney Brick Company of Mechanicsville.

The claim is made by the brick companies that the rates were increased last September from thirty to forty per cent and that the reductions were made to unimportant points where the consumption of their product is small. The defense of the railroad is a claim of justification in a statement that the new rates are made on a per-ton-per-mile basis, whereas the old rate was per thousand brick from the various points, which the railroad claims were discriminating in certain instances.

A decision in this case will be made by the commission following the filing of a report by Examiner Burnside.

REPARATIONS

Paxton Brick Company vs. the Pennsylvania Railroad Company, et al., $26.85.

Evans and Howard Fire Brick Company vs. the Illinois Central Railroad Company, $11.70.

Evans and Howard Fire Brick Company vs. the Missouri, Kansas and Texas Railway Company, $92.40.

Ludowici-Celadon Company vs. the Chicago and Northwestern Railway Company, et al., $21.38.

American Enameled Brick and Tile Company vs. the Raritan River Railroad Company, et al., $68.20.

National Fire Proofing Company vs. the Raritan River Railroad Company, et al., $11.50.

Pee Dee Brick and Tile Company vs. the Atlantic Coast Line Railroad Company, $91.30.

National Fire Proofing Company vs. the Raritan River Railroad Company, $6.99, also an amount of $29.14 on another shipment.

National Fire Proofing Company vs. the Pennsylvania Railroad Company, et al., $17.74.

COMPLAINTS

An interesting complaint has been filed with the commission by the American Enameled Brick & Tile Company, of New York city against the Aberdeen & Rockfish Railway Company and other roads. It is stated in the complaint that shipments are continually being made from the company's factory at South River, N. J., to points in the states of Virginia, North Carolina, South Carolina, Georgia, Florida, and Tennessee. The rates to these points the complainant states are "unreasonable, excessive, unjust, unduly discriminatory and unjustly prejudical." The complaint goes into minute detail of the rates to these various points on both enameled brick and terra-cotta. The company asks that an investigation be made of the matter, that a hearing be set, and that the roads be made to desist from violations of the act to regulate commerce, and that new and just rates be put into effect from South River, N. J., to points in the states above mentioned.

HEARINGS

Hearings of interest to the industry have been announced as follows:

September 14, at St. Louis, Mo., before Examiner Gutheim, of the Interstate Commerce Commission, in case No. 8121 of the Decatur Brick Manufacturing Company against the Ahuapee & Western Railroad Company, et al.

September 20, at Chicago, Ill., before Examiner Hines, in I. & S. docket No. 606 concerning rate increases in western classifications territory No. 2.

September 29, at Chicago, Ill., before Examiner Gutheim, in I. & S. docket No. 615 concerning rates via rail-and-lake routes.

Changes in Freight Rates

Since our last issue the following freight tariffs affecting clay products have been filed with the Interstate Commerce Commission. Those which have become effective *up to and including the date of this magazine* have no effective date appended; but those tariff changes which are to become effective *following* the date of this issue, are indicated by the date which follows them:

FROM EASTERN POINTS

From Black Rock, N. Y., common-brick, to Welland, Ont., 3.9c per cwt. (Effective September 1.)

From Bridgeburg, Friedenheim and Kittanning, Pa., clay and clay products, to Huntington, W. Va., $1.93 per net ton; to Louisville, Ky., $2.29 per net ton. (Effective September 2.)

From Brooks Siding and Maplewood, N. Y., building brick, to Mt. Joy, Pa., $2.10 per net ton.

From Buffalo and Black Rock, N. Y., brick, other than glazed or enameled, to Coniston and Romford Junction, Ont., $3.68 per net ton; to Niagara-on-the-lake and Queenstown, Ont., $1.05 per net ton. (Effective September 1.)

From Edwardsville and Le Claire, Ill., brick to Ashland, Eldred, Greenfield and Hagaman, Ill., 88c per net ton; to Atlanta and Lincoln, Ill., 90c per net ton; to Auburn, Ill., 80c per net ton; to Berdan, Carrollton, Delhi, Godfrey, Jacksonville, Jerseyville, Kane, Manchester, Murrayville, Whitehall, Woodson and Woodhouse, Ill., 75c per net ton; to Brighton, Carlinville, Girard and Virden, Ill., 60c per net ton; to Delaven, Ill., $1.10 per net ton; to Drake, Ill., Louisiana, Mo., Strout, Pleasant Hill, Pearl and Nebo, Ill., 95c per net ton. (Effective September 2.)

From Galesburg and Monmouth, Ill., brick (except bath or enameled) and other clay products, to Davenport, Ia., East Moline and Moline, Ill., 80c per net ton. (Effective September 1.)

From Galesburg, Ill., brick, fire-clay, tile and articles taking the same rates, to Dubuque, Ia., 5¼c per cwt. (Effective August 25.)

From Gilchrist, Ill., brick, to Detroit, Mich., and Toledo, Ohio, $2.42 per net ton; to Grand Rapids, Mich., $2.32 per net ton.

From Hamilton, Ill., brick (except bath or enameled) to Hamilton, Mo., $1.05 per net ton. (Effective August 28.)

From Hatton, Ohio, hollow brick and building tile, to Adrian, Mich., and Wauseon, Ohio, 95c per net ton; to Detroit, Mich., $1.05 per net ton.

From Highlands, Ind., brick, to Joliet, Ill., 53c per net ton. (Effective September 5.)

From Menomonie, Wis., brick (except fire, enameled and terra cotta) to North Battleford, Sask., 28.4c per cwt.

From Downington, Pa., brick and articles taking the same rates, to Eddystone, Pa., 79c per net ton; to Carney's Point, N. J., $1.50 per net ton. (Effective September 8.)

From Gettysburg, Pa., common-brick, to Suffolk, Va., $2.88 per net ton. (Effective September 1.)

From Green Island and Troy, N. Y., fire-brick, to Garneau Junction, Pa., 14.7c per cwt.; to Ottawa, Ont., 10½c per cwt.

From Kaulmont, Drummond, St. Marys and Shawmut, Pa., clay and clay products, to Stroudsburg, Pa., $2.08 per net ton.

From Langdon and Terra Cotta, D. C., common-brick, to Bethesda, Md., 42c per net ton; to Clarksburg, Goff Farm and Loveberry Siding, W. Va., $2.01 per net ton; to Frederick, Md., 95c per net ton; to Hagerstown, Md., $1.32 per net ton.

From Middletown, Pa., brick and articles taking the same rates, to Moore, Eddystone and Chester, Pa., $1.10 per net ton.

From Middletown, Pa., brick and articles taking the same rates to Mifflin, Pa., $1.10 per net ton. (Effective September 8.)

From Middletown, Pa., brick and articles taking the same rates, to Gibbstown, Penns Grove and Carney's Point, N. J., $1.70 per net ton. (Effective September 8.)

From Mountville, Pa., brick and articles taking the same rates, to Gibbstown, Penns Grove and Carney's Point, N. J., $1.65 per net ton. (Effective September 8.)

From Mountville, Pa., brick and articles taking the same rates, to Eddystone and Chester, Pa., $1.10 per net ton.

From Patton, Clearfield, Beech Creek, Irvona, Lock Haven, Orviston, Woodland, Krebs and other Pennsylvania points to Ceres, N. Y., Shingle House and Wilkes-Barre, Pa., $2.06 per net ton; to Morristown and Whippany, N. J., $2.46 per net ton. (Effective August 21.)

From Shawmut and Drummond, Pa., clay and clay products, to Clinton and Oriskany Falls, N. Y., $2.10 per net ton; to Ellenville, N. Y., $2.62 per net ton; to Oxford, N. Y., $2.68 per net ton; to Olyphant and Scranton, Pa., $2.00 per net ton; to Monticello, N. Y., $2.94 per net ton.

From Suspension Bridge, N. Y., brick, other than glazed or enameled, to Humberstone, Merriton, Pt. Colborne, Pt.

Showing How a Patented Wheelbarrow Enables One Man to Do the Work of Two

Dalhouse, St. Cartha, Carthaines and Thorold, Ont., 4.2c per cwt.; to Welland, Ont., 3.9c per cwt.; to Niagara Falls, Ont., 2.1c per cwt. (Effective September 1.)

FROM MIDDLE WEST POINTS

From Abingdon, Canton, Hopewell, Aledo Macomb, Monmouth, Streator, Ottawa, La Salle and Chicago, Ill., brick, fire-clay, tile and articles taking the same rates, to Dubuque, Ia., 5.3c per cwt. (Effective August 25.)

From Aledo and Gilchrist, Ill., brick (except bath or enameled) and other clay products, to Davenport, Ia., East Moline and Moline, Ill., 60c per net ton. (Effective Sept. 1.)

From Bloomfield, Ind., brick and articles taking the same rates, to Monroe, Monticello, Madison, Dill and Dodgeville, Wis., $1.90 per net ton. (Effective August 30.)

From Cairo, Ill., and rate points, enameled brick, to Kansas City, St. Joseph and Sugar Creek, Mo., Armourdale, Kansas City, Atchison and Leavenworth, Kan., 17½c per cwt.; to Council Bluffs, Ia., Omaha, South Omaha and Nebraska City, Neb., 21½c per cwt.

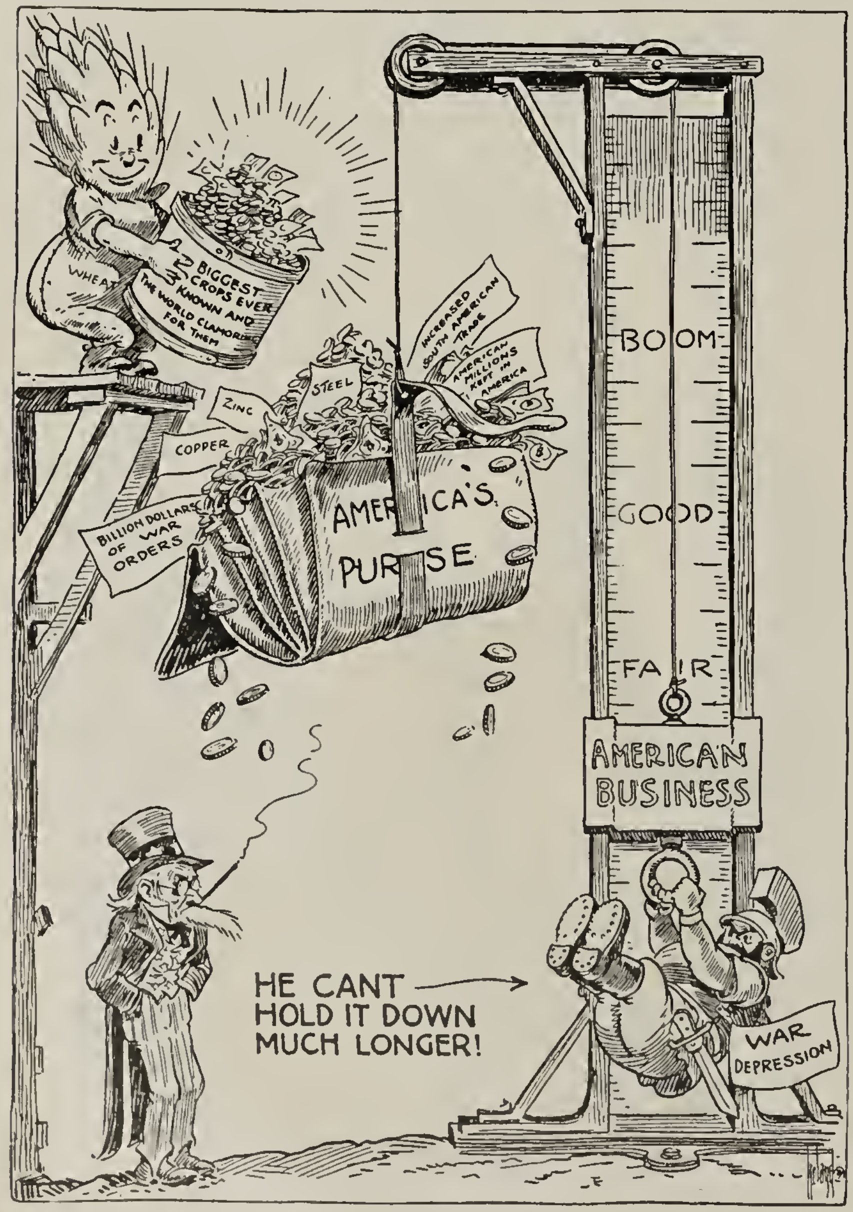
From Danville, Ill., brick, to Beverly Farm Siding, Chicago Heights, Matteson and Steele, Ill., and Frankfort and Spencer, Ind., 80c per net ton; to Joliet, Ill., 85c per net ton. (Effective September 8.)

From Edwardsville, Ill., brick, to Glen Carbon, Peters, Stallings, Horseshoe Lake, Madison and East St. Louis, Ill., 21c per net ton; to St. Louis, Mo., 40c per net ton. (Effective September 2.)

From Murphysboro, Ill., paving-brick, to Chicago, Ill., $1.40 per net ton. (Effective August 18.)

From Ottawa and Brickton, Ill., fire-brick, fire-clay and hollow building tile, to Houghton and Hancock, Mich., 12½c per cwt.

From St. Paul, Minn., and rate points, brick, to Beaudette, Minn., 11.9c per cwt.


WHEAT
BIGGEST CROPS EVER KNOWN AND THE WORLD CLAMORING FOR THEM
STEEL
ZINC
COPPER
BILLION DOLLARS OF WAR ORDERS
INCREASED SOUTH AMERICAN TRADE
AMERICAN MILLIONS KEPT IN AMERICA
AMERICA'S PURSE
BOOM
GOOD
FAIR
AMERICAN BUSINESS
HE CANT HOLD IT DOWN MUCH LONGER!
WAR DEPRESSION

From "The Retail Coalman."

From Streator, Ill., brick, to Beverly Farm Siding, Chicago Heights, Joliet, Matteson and Steele, Ill., and Dyer, Frankfort and Spencer, Ind., 55c per net ton; to Liverpool, Ill., and Gary, Glen Park, Griffith, Pine Rise and Tolleston, Ind., 65c per net ton. (Effective September 8.)

From West Salem, Ill., brick (except bath and enameled) and articles taking the same rates, to Minneapolis, Minnesota Transfer and St. Paul, Minn., $2.40 per net ton. (Effective August 30.)

From Whitehall, Perque and Alton, Ill., and St. Louis, Mo., brick, fire-clay, tile and articles taking the same rate, to Dubuque, Ia., 7.4c per cwt. (Effective August 25.)

FROM WESTERN POINTS

From Coffeyville, Columbus and Mound Valley, Kan., brick, to Bokoshe, Briartown, Carterville, Haskell, Kanima, Keefeton, Keota, Panama, Porum, Stigler, Taft, Warner and Williams. Okla., 9½c per cwt. (Effective September 10.)

From Colorado Springs and Denver, Colo., brick to Arriba, Bethune, Bovina, Burlington, Flagler, Seibert, Stratton and Vona, Colo., 9¾c per cwt.; to Limon, Colo., 7c per cwt.

From Clinton, Ia., brick, fire-clay, tile and articles taking the same rates to Dubuque, Ia., 4.2c per cwt. (Effective August 25.)

From Davenport, Ia., and Moline, Ill., brick (except bath or enameled) and other clay products, to Aledo and Monmouth, Ill., 80c per net ton. (Effective September 1.)

From Niles, Cal., clay, to Oakland, Cal., 2½c per cwt.

From Portland, Ore., Burlington, Wash., and North Portland, Ore., brick (except glazed or enameled) and articles taking the same rates, to Spokane, Oaksdale, Farmington, Garfield, Pullman, Moscow and Lewiston, Wash., 19½c per cwt.; to Riparia and Dayton, Wash., 17½c per cwt.; to Waitsburg, Wash., 16c per cwt.; to Walla Walla and Lendleton, Wash., and Athena, Ore., 15c per cwt.

From Raton, N. M., common or pressed brick, to Dawson, N. M., 8c per cwt.; to Taylor and Abbott, N. M., 9½c per cwt.; to Roy, Solana, Mosquero and Tucumcari, N. M., 12½c per cwt.

From San Francisco, Tesla, Cal., and rate points, fire-clay, fire building tile, hollow building tile, terra cotta, sewer-pipe, brick and clay conduits, to Lago, Utah, 37½c per cwt.

From Versailles, Mo., fire-brick, to Chicago, Ill., 10c per cwt. (Effective August 25.)

FROM SOUTHERN POINTS

From Asland, Ky., brick, to Ironton, Ohio, 50c per net ton.

From Ashland, Ky., common-brick, to Princeton, W. Va., $4.20 per thousand. (Effective September 6.)

From Maysville, Ky., common-brick, to Princeton, W. Va., $4.94 per thousand. (Effective September 6.)

From Richmond and South Richmond, Va., common, pressed and paving brick, to Durham, Madison, Walnut Cove and Winston-Salem, N. C., 6c per cwt.

From Ryttenburg, S. C., brick, to Albany, Ga., 9.4c per cwt. (Effective August 25.)

From Sumter, S. C., common-brick, to Atlanta, Ga., 9c per cwt.

From Marlboro, S. C., common-brick, to Aberdeen, N. C., $2.25 per thousand brick; to Ashburn, N. C., $5.02 per M.; to Dunn, N. C., $2.00 per M.; to Fayetteville, N. C., $1.65 per M.; to Gibson, Johns and Hasty, N. C., $1.20 per M.; to Hope Mills, N. C., $1.50 per M.; to Laurinburg, N. C., $1.35 per M.; many other No. Car. points are mentioned.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

EVERY CLAY-PRODUCTS MANUFACTURER knows only too well what it is to have belt troubles, and it is quite important to look well to the selection of a type of belt such as will give the greatest degree of satisfaction with a minimum of trouble.

"Scandinavia" Belting in Good Condition and Working Satisfactorily in a Brick Plant, After Two and a Half Years of Service

Clayworking machinery, with its massiveness and vibration, requires belting of great strength and durability, with almost no stretch, and at the same time it must be pliable. Very few belts can fill these requirements in every particular, and it should therefore behoove the clay plant manager or superintendent to make careful investigation of belts that have been tried in the field.

The "Scandinavia" Solid Woven Cotton Belting is one that has proven its worth in driving clayworking machinery. It is the original woven cotton belt and has been on the market since 1879. It has no plies, stitches or laps, but is woven on power looms and each strand of the cotton is subjected to severe stress during the entire process of weaving. It is both surface hardened and anti-frictioned throughout; is of uniform thickness; has enormous strength and grips the pulley firmly.

The illustration shows "Scandinavia" belting installed in a brick plant in 1910. This photograph was taken two and one-half years later, and every one of the original belts was still in good condition and working satisfactorily.

Scandinavia for conveying and elevating purposes has no equal. It does not peel. The texture of the Scandinavia Belt is such that it will wear like a homogeneous substance, and not fall to pieces when the surface has worn down. It may be run flat or troughed and it is used extensively for conveying brick, clay, sand, crushed rock, lime, etc.

Scores of clay-products manufacturers know that the "Scandinavia" belt "lasts and outlasts"—if you don't know it, why not find out about it? The home office address is: Scandinavia Belting Co., 106 Reade St., New York City, and they have branches in nearly every large city in this country, as well as in Toronto and Montreal.

Improved Industrial Type Oil Switch

This improved type of oil switch is used extensively in industrial establishments to control and protect induction motors up to 2,500 volts and 300 amperes. It can be mounted on a wall, post or other vertical flat surface, or by means of suitable supports on the machine operated by the motor. The switch is made by the General Electric Company in both non-automatic and automatic forms; the first simply to start and stop the motor, and the second to cut off current from the motor automatically on the occurrence of an overload greater than that for which the overload trip is set.

Through a recent improvement in the design of the mechanism, a low-voltage trip can be added to the automatic switch as an attachment at any time. To the non-automatic switch, either a low-voltage trip or a series-overload trip, or both, can be added whenever desired. Both means of tripping are mounted inside the switch cover.

Up to 550 volts (except on 110-volt, 60 cycle circuits, where the trip coil only is sufficient), an auto-transformer is used in place of the resistance previously required in series with the low voltage tripping coil. This transformer has taps to which proper connections can be made for the operating voltage. For 2,200 volt circuits, a new type voltage transformer replaces the transformer and series resistance used heretofore. The use of the new auto-transformer, or voltage transformer, makes the watt loss in the low-voltage device practically negligible.

On the switch with the time limit-overload trip, the calibrating tubes and dash pots are protected from injury by a cast iron guard which has been added to the equipment.

Switches can also be furnished with covers arranged to mount a round pattern ammeter and provide, in addition to

Oil Switch with Automatic Series Overload Trip and Low Voltage Release control and protection, a means of knowing at all times the amount of current being taken by the motor. This gives a continual indication of the motor load and the opportunity to detect trouble in the motor or its circuit.

A New Drier Door Carrier

It is perhaps safe to say that every brick plant superintendent has worried a lot because it has seemed impossible to keep the drier doors in line and tight. This condition naturally made for inefficiency in drying ware because a large percentage of the heat "leaked out" at the doorways.

For many years the lumber companies have equipped their dry kilns with the Hussey Door Carrier and it is acknowledged to be the most practical and efficient method ever devised for keeping the dry kiln doors in line and tight.

"Carrier" with One Door Lifted

Until recently, however, this carrier has not been made for the smaller size doors, such as are used on brick driers, so it was not available for that purpose. But this same company has now adapted the carrier to be used on doors measuring from 2 to 8 feet wide and from 5 to 8 feet high. This makes it ideal for any style of brick drier.

The main feature of this carrier is that it runs on an overhead track and is not attached to any one door. Each door has lugs fitted to it, and to open the door, one simply slides the carrier along until it is directly in front, then, by pressing a lever, the carrier grips the lugs on the door and lifts it free so it can be rolled open.

When the doors are closed they are held tightly in place by bed pieces at the bottom and supports at the sides or top—sometimes both sides and top, depending on the width of doors. The carrier also permits of different sizes of doors on the same end.

Full details will be cheerfully furnished to any clayworker who writes to Dry Kiln-Door Carrier Company, Indianapolis, Ind.

A Handsome Folder Free

Thousands and millions of colored folders and postcards have been printed in recent years, and yet we doubt if a more unique or handsome folder has ever gone into Uncle Sam's mail bags than one emanating from Detroit. It shows colored views of 22 of Detroit's largest industries, the one of the Ford Motor Company being an unusual view representing the great magnitude of that plant.

Twelve of the industries shown are the world's largest in their particular line, and a brief description is given of each one. These folders are for sale on the newsstands and at souvenir stores of Detroit, but through the courtesy of The American Blower Company, whose plant is shown, readers of "Brick and Clay Record" will receive a folder free if they will just ask for it. The supply is limited so it would be well to write for your copy at once.

Just address The American Blower Company, Detroit, Michigan, and mention "Brick and Clay Record."

How to Keep Conveyor Belt Records

A new method of recording the cost of various conveyor belts in operation has been worked out by the B. F. Goodrich Company, of Akron, Ohio, in the interest of all belt users.

Ordinarily, accurate costs are rather difficult to determine, and few plant managers have the time to work out an adequate system for making computations. The use of various belts, however, is an important factor and many a dollar can be saved through a knowledge of where to cut down the tonnage cost.

The B. F. Goodrich Company will mail you a card, at their expense, that is simple, but most efficient. It will help nail up those little openings where profit continually slips out.

Forty-six years of experience naturally gives this concern a wealth of material from which to formulate ideas. The development of those ideas, however, is not a secret and their arrangement on the record card is a service to the belt user which cannot help but be beneficial.

"Safety First"

Everyone who has had to deal with the opening of the hoppers of drop-bottom or side-dump cars, knows of the difficulties and dangers that accompany the operation.

As the doors suddenly open, after being started, the operator must pull the wrench off quickly, or jump promptly. Failure means an accident, with probabilities in favor of it being a serious one.

The usual ratchet wrench is just as dangerous, in as much as its only advantage is in the ratchet device, which permits of short strokes.

The Hessteel Ratchet Wrench combines this convenience with automatic safety.

"Safety First" is to be desired in all operations, not only from the standpoint of safety for the employes, but also from a financial standpoint. The loss accuring from injury to a skilled employe is two fold: his services and the compensation paid to him or his family.

The Hess Steel Company of Bridgeton, N. J., manufacture the wrench and will make prompt shipments.

The American Blower Company Has One of These Handsome Folders for You

Ralph T. Coe, manager of the Canadian Sirocco Company, Ltd., Windsor, since the organization of the company, has resigned to enter the engineering service and sales field in New York State. Mr. Coe has been appointed district manager for Warren, Webster & Co. and the American Blower Company, and will have offices at 519 Insurance building, Rochester, and 19 Live-Stock Exchange building, Buffalo.

Salesmen You Should Know

The man with a gleam in his eye—sincerity in his handclasp—a sense of helpfulness in his heart—that's the Salesman of today. To all of us he is welcome. He sleeps with one eye on his grip and the other on a timetable, ready at the word of command to "go anywhere for business."

"Brick and Clay Record" is proud of the opportunity to give its readers a chance on this page to renew acquaintance, or to meet for the first time, leading salesmen in the clayworking industry.

Mr. Grath Points with Pride to a Brick Made on a Peerless Press

IT WAS PRIOR TO 1880 that W. P. Grath began a successful career as a brick man. Away back yonder he "got a job" as office boy with the Hydraulic Press Brick Company, of St. Louis, but he was the kind of office boy that shows a capacity for bigger things, and in nine months' time he was graduated to the brickworks as timekeeper, where he remained for nearly three years. He was then promoted to be general manager of the shipping department, which position brought him in contact with every department in the manufacture of pressed brick and he missed no opportunity to learn.

While he was with the Hydraulic Press Brick Company they were operating four ten-mould machines having a capacity of 175,000 brick. After 13 years' experience there Mr. Grath, in 1892, became a manufacturer of pressed brick by organizing the American Hydraulic-Pressed Brick Company at Collinsville, Ill., operating at the same time the Broadway Brick Works, and also taking the output of the Thomas Pressed Brick Company above St. Louis.

At these several plants Mr. Grath had practical experience in the operation of many different kinds of presses, including modern and the old style hammer machines. This enabled him to observe the defects in the working of so many machines for the manufacture of dry-press brick that he became interested in overcoming the difficulties experienced and invented the Grath Special Peerless Brick Press. It is claimed that the Grath press has fewer working parts, greater strength, and is of more simple construction than any other brick press ever devised.

His kiln inventions have been put to practical use in many parts of the country—some of them erected in 1892, at Collinsville, Ill., being still in use and giving excellent service.

Mr. Grath is now general manager of the Illinois Supply & Construction Company, 721 Century Building, St. Louis, Mo., controlling the Grath patents, selling presses and a complete line of clayworking machinery, as well as dealing in brick. Mr. Grath's practical experience has enabled him to be of great assistance to clayworkers in every section and he is a salesman of note and large acquaintance. It always pays to start at the bottom if one has ability and ambition coupled with a genial personality and an inherent love for work. Mr. Grath's career is surely an enviable one.

An Engineer and Salesman

The making of brick and other clay products has developed to such an advanced stage in recent years that it has seemed constantly more necessary for those engaged in the art to know something of ceramics. Consequently our colleges and universities have had a growing demand from our younger men who are anxious to learn the chemistry of clays and rightful practice in mixing and burning.

The University of Illinois is one of the foremost of our schools for the teaching of ceramics and it has graduated some of our most successful men in the industry today.

H. C. Arnold is a U. of I. graduate in ceramics. He was born and educated in the "I Will" city on Lake Michigan and that has always been his motto. As secretary of the Ceramic Supply & Construction Company, of Columbus, Ohio, he has shown a great aptitude for helping clayworkers in every branch of the industry. His work takes him out into the field and in his short career he has made many friends among the brick manufacturers. He is the genial type of salesman, energetic and resourceful.

H. C. Arnold

SCUM Do You Have It Can You Cure It ?

You could if you knew just where to look for it. Send sample of your clay, your temper water and your coal to me to be analyzed. I will tell you where the trouble is, and how to cure it.

H. M. DEAVITT, 209 So. La Salle Street, Chicago, Ill.

The DEWEY 5-Ton Locomotive

It never balks on heavy loads or grades
Why not let the Dewey do *your* work?

DEWEY BROS., Inc., Goldsboro, N. C.

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

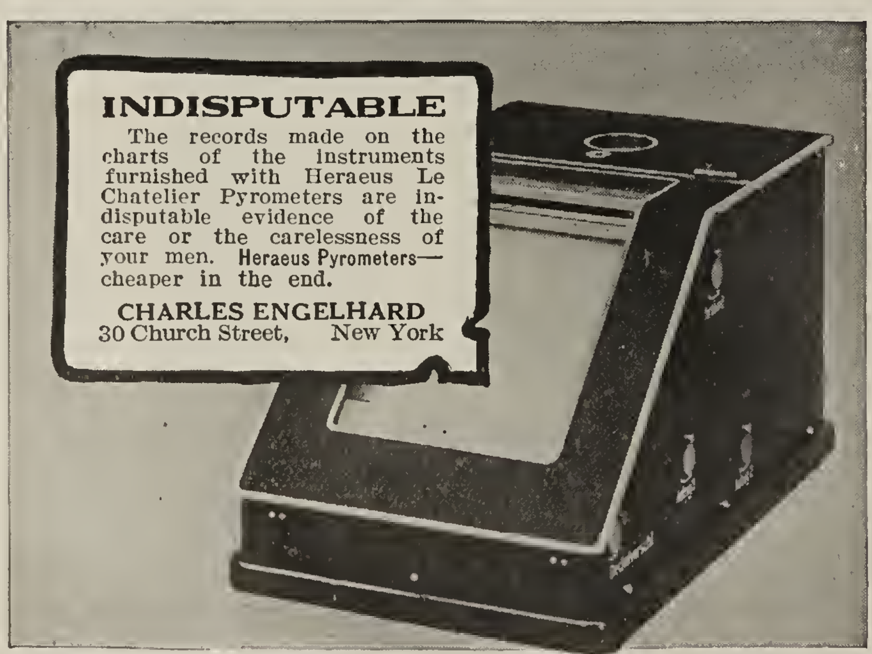
DRYER CARS
ALL STYLES—ALL SIZES
H. W. GERLOCK, Huntingdon, Penna.

Yes, It Is Important

that you show care in the selection of your sample brick, but—it is equally important that you show the same care in packing them. What's the use of picking out a perfect brick if you allow it to be sent without proper protection? The Hinde & Dauch Corrugated Box "fills the bill" exactly. It is strong, durable, convenient and economical. Thoroughly protects the edges and corners of your brick.

Write us for sample and prices

The Hinde & Dauch Paper Co., Sandusky, O.



INDISPUTABLE
The records made on the charts of the instruments furnished with Heraeus Le Chatelier Pyrometers are indisputable evidence of the care or the carelessness of your men. Heraeus Pyrometers—cheaper in the end.
CHARLES ENGELHARD
30 Church Street, New York

The Semi-Monthly Trade Review

UNHAMPERED by the recent unfavorable weather and an unusually heavy rainfall in many sections of the country, whose worst effects have been at the most only temporary, the crop outlook and the industrial and financial situation continue to show distinct improvement.

One of the most significant developments of the past few weeks—one which indicates the better tone that is being assumed by general business—is a review of the stock market for the past year, or since the opening of hostilities across the water. Encouraging as the gains are in "war stocks" from a business standpoint, they are no more encouraging and certainly not so fundamental as the increases scored by the railroads and the great majority of the industrials that have not been inflated by huge war orders, says the "Chicago Tribune." If the rise in Bethlehem Steel of 227 points is significant of the wealth that has been thrust upon the country following the war, the rise of eight points in American Sugar, of seven in American Telephone and Telegraph, of ten in the Atchison, of twelve in Consolidated Gas, of fifteen in Union Pacific, of twelve in Western Maryland, and of fourteen in Woolworth are also significant. Business is better placed in public opinion and the railroads in particular seem to have brighter days ahead of them. In the analysis of about 150 leading stocks, losses are shown in only four or five instances.

Continued reports of "bumper" crop prospects absolutely refuse to me dimmed by the recent heavy rains. According to the August government report there will be a record breaking yield of wheat, and crops of corn, oats. barley and hay will equal, if not surpass, those of last year. The total wheat crop is now estimated at 3,000,000 bushels more than was forecast in July, or a total of 969,000,000 bushels. Only unprecedented unfavorable weather can interfere with the harvesting of this enormous crop and since this is not likely to occur, and with the sustained European demand for this grain at good prices, the result will be a prosperity on the farms of the United States that has never before been equaled, for this will make the second year of excellent crops at high average prices. The effect on the crops of continued excess rains in almost all sections of the country, has been both good and bad, the benefit far exceeding the damage, as serious as has been the latter in some sections. Much of the corn crop in the northern portions is late, but will mature with favorable weather.

Another sign of returning prosperity is the decrease in business failures, which, instead of showing the customary July increase in number, disclose fewer losses than in June. The fact that the commercial death-rate has fallen about forty per cent since January 1 of this year, is also highly encouraging. Bank clearings during July for the country at large gained three per cent over the same period last year, which is another indication of improving business conditions.

In the clay products industry there is much about which to be encouraged. A large amount of work is being contemplated—work that has been filed, but which, for one reason or another has been held up, mainly because of the difficulty heretofore encountered of getting money at reasonable rates of interest. All of these operations will ultimately move to orders and records available show that there is a general loosening up of plans.

This greater freedom of movement will not appear, however, in the current reports of national building construction for the reason that these reports deal only with current plan filings. These figures do not show when construction actually begins. But there is a way of ascertaining just how the building of the country is progressing by reports upon the contracts let and bids wanted as issued by architects. Statistics show that of the $1,153,808,025 worth of projected building operations planned in the year and one-half prior to July 1, that is from January 1, 1914, to June 30, 1915, only $701,009,000 actually went ahead to completion. Approximately $22,000,000 worth of building construction, already under way, was halted in August, 1914, and the remainder hung in abeyance. This leaves $430,801,000 in projected building, plus that which has been projected since the turn of the half year, to require building materials.

July building reports for the entire country probably will show a slight improvement over those of June. Taking the principal cities as a barometer, the amount of building construction that is under way is encouraging. Many show a distinct gain over the same period a year ago, while a good part of the losses can be traced to unfavorable weather conditions which, in many sections, have greatly interfered with the progress of the work. These conditions, however, are only temporary, and at best, will delay the work but a few weeks.

Prices for all building materials are better and stronger than they have been in a year and a half. Iron, steel, cement, lime, plaster, lumber, gypsum, asbestos, roofing materials, glass and similar commodities are higher, and probably will continue to rise in price.

The prices prevailing for common-brick on the New York market, however, have not been very encouraging. This state of affairs can be traced to the unusually low prices which have prevailed for Portland cement during the early part of the year and which have forced the manufacturers to cut their price in order to prevent substitution of their product with cement which the contractors were able to buy cheaper than ever before.

But now cement has moved up and the dealers are beginning to feel the "pinch" of Portland cement at levels higher than have ruled for many years, and in consequence there is better prospect of having brick prices move to a higher level. Six months from now with only 600,000,000 brick on hand to carry the market over the winter and into the spring of 1916, the manufacturers will be in a more favorable position.

As for the immediate future, the prospects are bright. It has been shown how the building operations now under way and those about to be started will make for an increased demand in clay products. It must be

If more than 100 of
America's largest brickmakers
Say that no other than
"Nugget" Babbitt
is good enough for them—
Why not try it yourself?
Only 15 cents per pound.
Cleveland Alloys Co.—Cleveland, Ohio

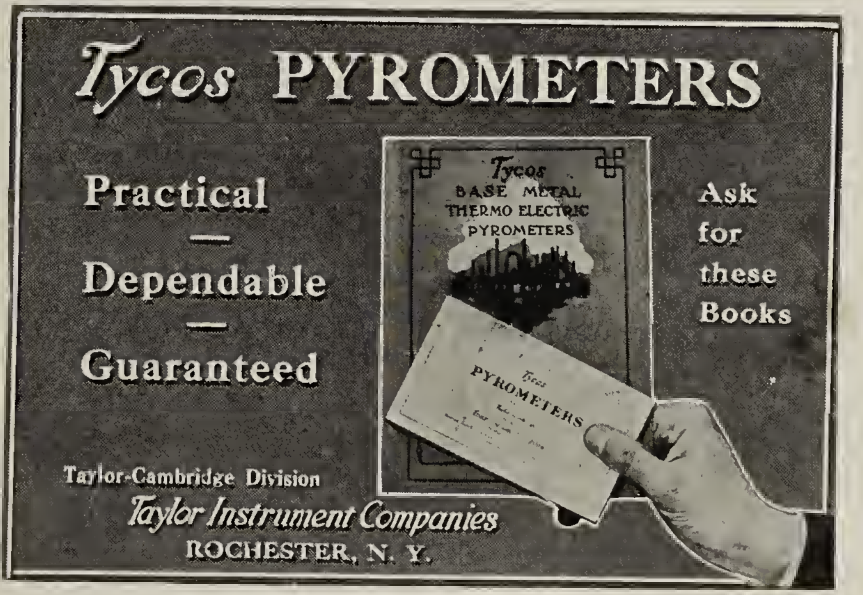
STRENGTH
UNIFORMITY
DURABILITY
REG. U.S. PAT. OFF.

The Webb Wire Works
New Brunswick, N. J.

Send for Sample and Prices of WEBB "Red Label" Wire

The loops are twisted, wrapped and soldered, another triangle of strength.

Our steel is made especially for us in Sweden. We temper and draw the wire to withstand abrasion. Webb Wire is strong, durable and uniform. It is furnished in coils or looped lengths.



Tycos PYROMETERS

Practical
—
Dependable
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Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices:
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BUCKEYE MEANS BEST

BEST MEANS BUCKEYE

All Sections from
12 lb. to 40 lb.
per yard

Write or
wire us,
when in need.

No order too large to handle promptly or too small to secure immediate attention.

Has Your Plant Burned---Yet?

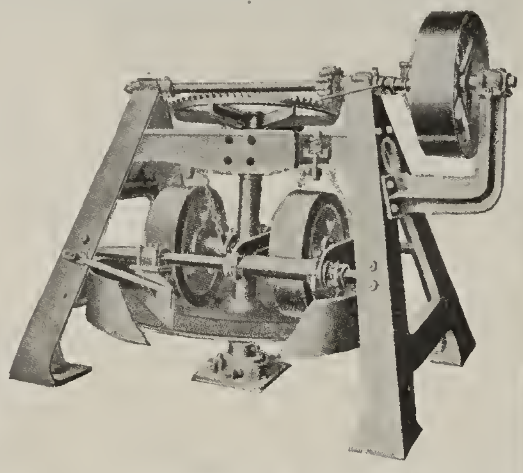
It may—if—"in the long hours of the quiet night" it is not adequately protected by

A Hardinge Watchman's Clock

The complete system costs $36.00. A booklet—that's worth reading—tells it all.

Hardinge Bros., Inc.
1760 Berteau Ave., Chicago

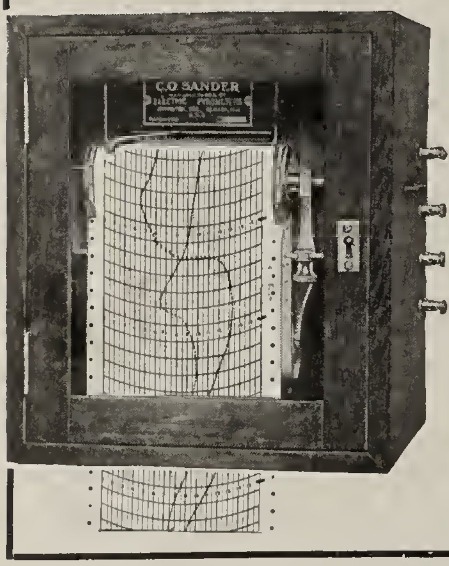
Approved and labeled by National Board of Fire Underwriters.



THE EAGLE DRY PAN

Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA



Control Your Temper

Your burner would be able to control his better, if you equipped your kilns with a SANDER PYROMETER. Not only that, but he could control absolutely the temperature of the kilns and produce uniform burns.

Ask for details.

Sander Instrument Co.
136 19th Ave. Irvington, N. J.

Link-Belt Silent Chain

The modern method of transmitting power

from prime mover to machine, or from line shaft to counter shaft. It shows the highest sustained efficiency of all mediums for the transmission of power (98.2% on actual test). It is as flexible as a belt—as positive as a gear and is more efficient than either.

Write for Silent Chain Data Book No. 125 or send for a Link-Belt Service Man

LINK-BELT COMPANY
Philadelphia Chicago
Indianapolis

remembered, however, that it takes time to recover fully from the fearful depression into which this nation was plunged a year ago. People are now beginning to pay their bills. The stock of gold in this country is abnormally large. Banks are beginning to loan money with greater freedom and capital is available in moderate quantities for new enterprises. All of which adds to the prospects for increased capacity and better prices at the plant of the man who works in clay.

In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

ALABAMA

G. W. Eichelberger has been making improvements to his plant at Anniston, Ala.

F. M. Esdick has organized a company to build a brick plant at Gadsden, Ala.

The Ballard Brick Company of Calvert, Ala., has begun the manufacture of drain tile.

E. J. Ostling, G. B. Wright, W. E. Bowers and J. T. Davis have organized a concern to make brick at Tuscaloosa, Ala. It is proposed to build a plant with a capacity of 125,000 brick per day.

The Excelsior Brick Company, Montgomery, Ala., is operating its plant with electricity and is making about 40,000 common-brick per day. The clay is dug with an automatic steam shovel which has proved a profitable investment.

The Birmingham Fire Brick & Proofing Company of Birmingham, Ala., has begun the manufacture of a clay silo tile. The silo industry has been a growing one in the South and this, it is reported, is the first attempt to manufacture clay silo block in this part of the country.

The Graves Vitrified Shale Paving Brick Company is working its full force of one hundred and fifty men and shipping its entire output to Florida. This plant is located in Birmingham, Ala., and turns out about 35,000 paving brick per day.

At Tuskegee, Ala., near Montgomery, is the Tuskegee Institute which has a large industrial training school for colored people. A first-class brick plant with a capacity of 20,000 brick per day is operated during the summer months. the plant being in charge of Wm. Gregory. Bricklaying and tile setting are taught at this institute.

The Copeland-Inglis Shale Brick Company of Alton, Ala., is building two additional kilns, which will bring the capacity of that plant up to a million and a quarter brick per month, all pavers. The greater part of this output goes to Florida where the brick are laid on a sand cushion without the usual concrete foundation.

The Decatur (Ala.) Brick and Tile Company has put in a new dryer and has made other improvements. A large part of the plant has been rebuilt, including a storage bin large enough to hold clay sufficient to make two million brick. Common-brick, it is said, sells for $7.00 per M in the neighborhood of the plant and this price is sufficiently high to assure a good profit.

The American Clay Products Company of America has been organized at Fairhope, Ala., with F. L. Brown as president; Mrs. Mary Fels, vice-president; G. C. Streeter, secretary. This is a part of the co-operative, communistic colony established by Joseph Fels of Naptha soap fame before he died and the plans are being continued by his wife. Three hundred acres of land will be developed to manufacture common-brick, fire-brick, hollow tile, terra cotta and roofing tile.

The Jenkins Brick Company operates two plants in Montgomery, Ala., making common-brick at one and drain tile at the other. Some face-brick have been made at the common-brick plant but this line has not been developed. It is rumored that preparations are being made to put in hollow tile machinery but whether this will be done at the third plant (located at Ottumpka, Ala.) or at one of the Montgomery plants, is not known. This company operates two gas-fired continuous kilns.

ARKANSAS

The Helena Ornamental and Press Brick Company of Helena, Ark., has been incorporated with a capital stock of $10,000 by W. V. Deering, W. F. Castle and Catherine Deering.

The Burke Brick Company, Fort Smith, Ark., has resumed operations, with orders for about 400,000 brick on hand, mostly matt face brick for building in Texas and Oklahoma, with some large orders for paving brick at Shreveport, La. The company employs sixty men. M. C. Burke, president, said that the Massard prairie wells are producing sufficient gas for burning, and the plant will run at its capacity.

IDAHO

C. C. Welderman of Pocatello, Idaho, has leased the small brick plant of Thomas Smedley and has begun the manufacture of common-brick. Should the present season prove successful, it is the intention of Mr. Welderman to install new machinery and increase the capacity of the plant.

INDIANA

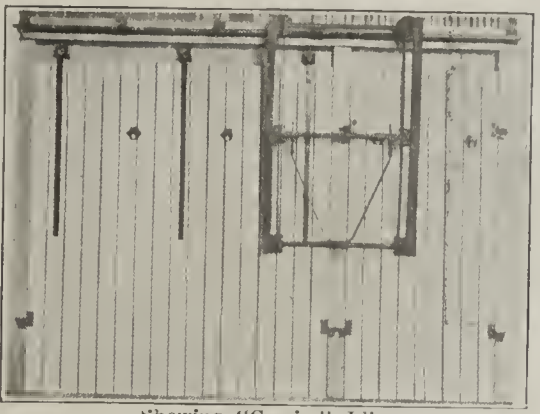
The Indiana Brick Company's plant, at Clinton, Ind., after being shut down for two weeks, has started again with a full force of men.

A. B. Meyer & Company, of Indianapolis, Ind., has built a miniature stairway of brick with a stone capped balustrade and is using it for a window display. What lifts it out of the ordinary and gives it advertising value on a busy street, is the sign on the steps reading: "Step Up to Our Display Room."

The German-American Clay Company of Muncie, Ind., has been incorporated with a capital stock of $10,000 and will engage in the mining of high-grade clays and coal. The company now has in operation a Kentucky mine, fully equipped for mining a clay that is highly plastic. The main offices of the company will be in Muncie and the incorporators are Charles Grafton, Charles J. Gill and John H. Gill.

T. Z. Shelley, superintendent of the Brooklyn Brick Company, Brooklyn, Ind., took a fancy to an experimental face that came from the kilns and built his home of it. It is proving popular, and will be added to the line, probably as the "Horizontal Zebra," though it is known at present as the "Harvard Colonial." The name "Horizontal Zebra" is more descriptive. The brick is a red face with a T-shaped splotch of white running lengthwise. The first suggestion that it be called the "Zebra" was rejected because a zebra's stripes run around, but the new

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

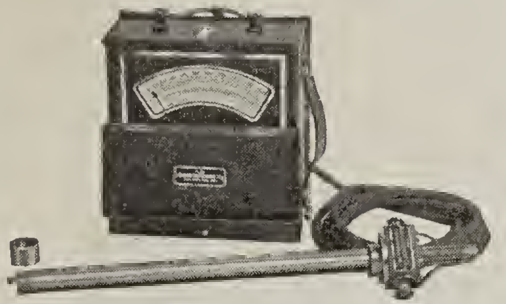
Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.

PYROMETERS



One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

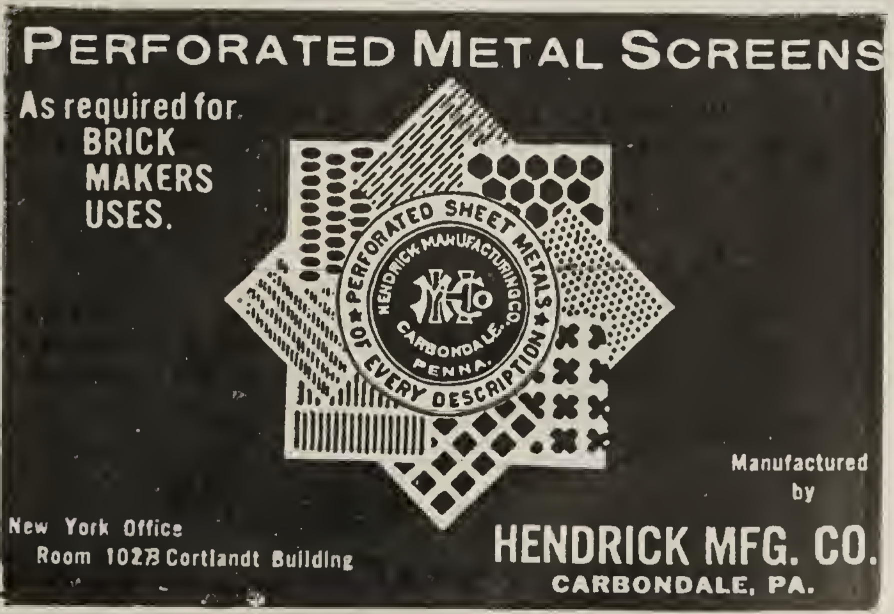
The Brown Instrument Co.
Philadelphia, Pa.
New York Pittsburgh Chicago

Sand-Lime Brick Plants and Machinery

Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

Let us Serve You.

Jackson & Church Company
Saginaw, Michigan


PERFORATED METAL SCREENS
As required for BRICK MAKERS USES.
PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO CARBONDALE PENNA.
Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.
New York Office
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Pyrometer Permanence

You have frequently heard of other pyrometers being displaced by the STUPAKOFF LE CHATELIER, but you have never heard of the Stupakoff Le Chatelier being replaced by any other make.

Write for a copy of "Pyrometer Facts."

The Stupakoff Laboratories
Pittsburgh, Pa.
6

An Investment

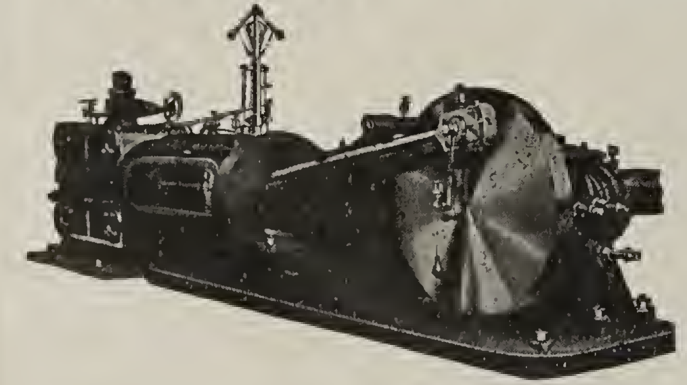
That's what the Rust Special Clay Feeder is. It pays for itself and earns big dividends. It helps you to produce better ware at reduced cost.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Let us tell you about it.

Davenport Locomotive Works,
Davenport, Iowa

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

name not only suggests the zebra stripe, but the direction of its running. The new face gives a mottled effect like that of the Indian pottery from Arizona and New Mexico.

IOWA

Wm. Shaw, former manager of the Cedar Rapids (Iowa) Brick Company, is planning to go to Cannon Falls, Iowa, to operate a brick plant at that point. J. H. Cartwright succeeds Mr. Shaw as general manager at the Cedar Rapids plant. This plant turns out about 35,000 dry-press brick per day and has eleven kilns, three of which are under fire.

Eight men employed in the plant owned by John Koetting and Sons, at Muscatine, Iowa, turn out 18,000 to 20,000 brick per day. This is exclusive of two men employed in the clay pit. This concern has access to a variety of clays and as a result they make about six different kinds of brick, ranging in color from a beautiful bright red to a soft dull green. In common with other Iowa brickmakers, however, the Koetting plant has suffered from the excessive rain and, it is said, has not turned a wheel since July 1st. When work is resumed it is expected that the new down-draft kiln that was recently completed will be put into operation. This kiln was built after a disastrous fire had destroyed three of the old kilns as well as the kiln shed.

KENTUCKY

The R. B. Taylor Company, of Louisville, Ky., reports the closing of several orders for face-brick on residence work in Shelbyville.

The Paducah (Ky.) Clay Mining Company has equipped a plant to mine clay, with a daily capacity of approximately sixty tons.

Shipments of fire-brick on the Navy Yards contract of the Louisville (Ky.) Fire Brick Company are going forward at regular intervals. An average of ten cars a month will be maintained for the balance of the year.

O. H. Parker is now the sole owner of the Eastwood Ferry Brick and Tile Company's property at Eastwood Ferry, near Sebree, Ky., having bought out the interest of his partner, T. A. S. Semple. The first kiln of brick has recently been turned out at the plant and it is described as being of high quality.

The Coral Ridge Clay Products Company, of Louisville, Ky., is entering the face-brick field, having just introduced two new types of face-brick to the Louisville trade. These are called "Coralmatt" and "Coralruff" and are, it is said, the first locally made shale face-brick that has been offered in the Louisville market.

The East End Brick Company, of Louisville, Ky., which for some ten years has been operating on the site of the old Spring Hill Fort, has ceased to exist as a corporation, and henceforth will be carried on as a partnership, with P. M. Crane, who was secretary and treasurer of the company, and E. R. Bassett, the owner of the plant, as the partners. A. B. Hillenbrand, Jr., who had been general manager of the property, has given up his interest in the business and is taking a vacation before he establishes some other connection. The plant was shut down during April and the stock of brick then on hand has been reduced from very nearly a million to about 30,000. Work was resumed the first part of the present month.

The Tyler Building Supply Company is delivering a Roman brick, Hytex No. 503, to Hugh Nevin for a house he is building for Ed. Vogt on the Newburg road, east of

THE BURNER IS THE PRODUCER

HE READS ON THIS DIAL → the exact temperature of the kiln, both top and bottom—he knows when to fire and how to fire—and he produces first quality ware.

The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

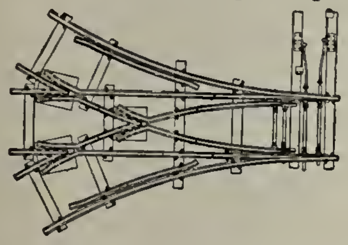
Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

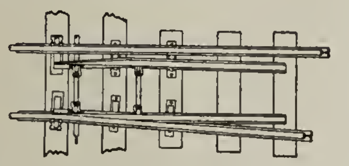
Pettigrew Foundry Co.
Harvey, Illinois

Shipped the Day You Want It

All styles of frogs, switches, switch stands, portable track, etc., are constantly kept in stock. No matter what track equipment your order calls for we can ship it promptly.



Catalog C gives full information



Cincinnati Frog & Switch Co., Cincinnati, Ohio

Broderick & Bascom Rope Co.

Manufacturers of

Aerial Wire Rope Tramways
Yellow Strand Wire Rope
Wire Rope of Every Description

805-809 N. Main St. St. Louis, Mo.

With your Shovel ?
In a hurry ? Must have clay ?
The Beam Swings and drops,
Rips and rams
For dipper load—
Swings back—then dumps—
and the chains—"They will not break"
if they're WOODHOUSE SPECIALS
We'll tell you why.
WOODHOUSE CHAIN WORKS Trenton, N. J.

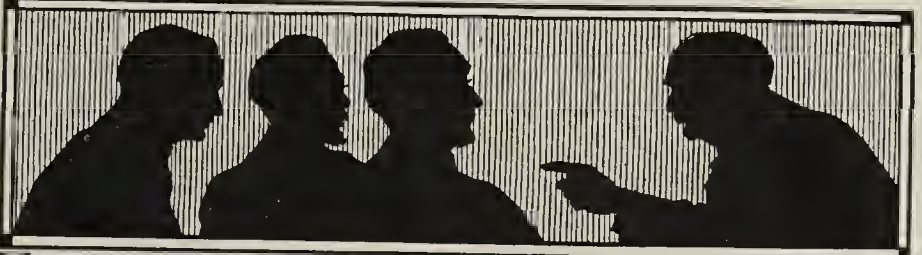
Brick Houses
And How to Build Them

A book containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc.

The houses shown are all of artistic design drawn by leading architects and show what can be accomplished by the use of brick as a building material.

Price, Postpaid $1.00

Book Department *Brick and Clay Record* Chicago



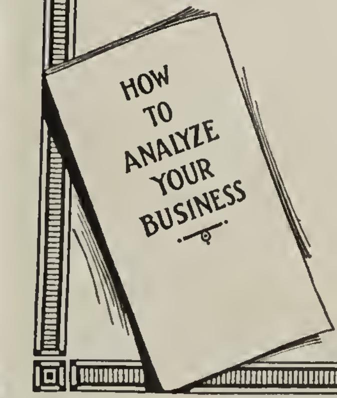
"Their intentions were good
But
The results proved unsatisfactory"

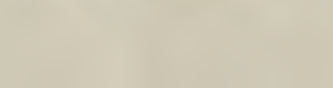
The above refers to two leading manufacturers—at present our clients—who felt they did not need our Service and tried to do their own efficiency work.

Later, less than two months of our Service revealed possible savings of over $75,000.00 for one and over $100,000.00 for the other. In a personal interview, we will be pleased to give particulars.

One of these is a Clay Plant. Let us solve your "Knotty Problems." That is our business.

L. V. Estes, Incorporated
Engineers
McCormick Building, Chicago





Let The Burner Have A Thwing

Indicating Pyrometer in his shed connected by a dial switch to one or more Thermocouples in each kiln.

Then he will not need to be making excuses for poor firing and poorer product. With a knowledge of the temperature before him, he can control his firing and produce better ware with less fuel.

Write for Bulletin No. 7

Thwing Instrument Company
437 N. Fifth Street, Philadelphia, Pa.

THE IMP. HOOK PAT. UP AND DOWN DRAFT KILN
THE MOST MODERN, EFFICIENT KILN ON THE MARKET

OHIO KILN CO., Forest, Ohio, July 20, 1915
Vigo, Ohio.
Gentlemen:
Enclosed find check in payment of kiln plans and specifications.
We have just emptied a kiln, and there was not one piece of over-burned or under-burned ware. There was no difference between the top course and the bottom course.
It rained continually from start to finish of burn and we shoveled the coal right out of the water. No kiln could have burned them better, as it was a perfect burn.
Yours truly,
Forest Brick & Clay Works,
Asa Conley, Mgr.

"THE SECRET"
Direct heat applied uniformly to bottom and top of ware at the same time
No Other System Like It. Sold Only By
OHIO KILN COMPANY : : VIGO, OHIO

Louisville. This is the third house in which a Hytex Roman face-brick has been used in this particular part of the city, and the first one is believed to have had the most influence in selling the others. Though a good deal of the volume of the business done by the Tyler Company is what Leo Parsons described as "5 and 10-cent store" business, as a whole it is mounting up in a satisfactory way. Not only the Louisville prospects are followed up by this company, but Mr. Parsons and Isaac Tyler go after the business which develops out in the state, and have been successful in getting a good share of it.

MAINE

Fire did considerable damage at the brick yard of Augustin Caret, at Augusta, Me., recently. Two kilns were in operation and a cave-in among the brick caused the roof of one to be precipitated upon the fire igniting it. The structure was destroyed, in spite of the efforts of the firemen.

MARYLAND

The Hancock Shale Brick Company of Hagerstown, Md., expects to make extensive improvements to its plant.

MASSACHUSETTS

A new cable railway has been installed at the New England Brick Company's plant at Bridgewater, Mass.

The residents of Winchester, Mass., were given a "war scare" recently when three and a half tons of dynamite were exploded in one charge at the plant of the Winchester Brick Company, recently. Thirty-five tons of rock was dislodged in the pit by the blast.

A new brick yard is being fitted out at Ware, Mass. The machinery for the brick making has arrived, several buildings are being constructed and the Boston & Maine railroad is running a spur track to the yard. The making of brick will be commenced just as soon as the machinery is in position.

MICHIGAN

The Warren B. Ferris Brick Company has placed the Grand Rapids (Mich.) agency for its brick with the Standard Builders' Supply Company of that city.

The Dresden Brick Company, of Detroit, is supplying an order of approximately a half million Hay Walker brick to the 24-story addition to the Penobscot Building.

Detroit, Mich., brickmakers have considerable cause to grumble at the weather conditions in the "City Where Life's Worth Living," since twenty-six days in July were so moisture-laden that building construction was impossible. This caused the former brisk demand for building materials to slacken and has also had the effect of slowing up collections.

MISSISSIPPI

The Pringle Turpentine Cup Company of Beloxi, Miss., is making turpentine cups of clay and finds this a very profitable line of clayworking.

MISSOURI

H. Tidd, a civil engineer of Kansas City, Mo., spoke before the National Old Roads Association, on July 9, at Kansas City. His subject was, "A Permanent Road," and exploited brick over other road making materials.

The Hydraulic-Press Brick Company has closed its plant at Guinotte and Salisbury, in Kansas City, some time ago, but is still using the property for the storage of brick from the plant at Fifty-sixth and Elmwood. This

"Bolt It to the Bin"

The Columbus Feeder

for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio

Valley Brick Company Plant for Sale at Public Auction

August 28, 1915

At Charles-Town, W. Va.

A Modern Brick Making Plant, consisting of about 15½ acres of land, Brick Making Machinery (Freese), Dry-House, Five Permanent Kilns, Etc.

The Plant is located in Ranson, a suburb of Charles-Town, Jefferson County, West Virginia, and is connected with B. & O. and N. & W. Railroads by belt line and switch.

For terms, photographs and further description of Plant, address

H. V. SHEETZ, *Trustee*
Charles-Town, Jefferson County, W. Va.

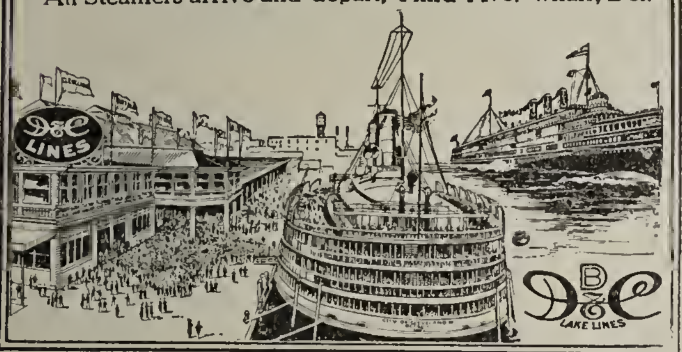
THE COAST LINE TO
MACKINAC
DETROIT, CLEVELAND, BUFFALO, NIAGARA FALLS.
TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A LAKE TRIP FOR REST AND RECREATION

Have a real vacation on the Great Lakes, the most enjoyable and economical outing in America. The cool lake breezes, the ever-changing scenes along the shore, and the luxurious steamers of the D. & C. Line are positive guarantees that you will enjoy every minute of your trip, and return home refreshed and glad you went. Daily service between Detroit and Cleveland and Detroit and Buffalo. Four trips weekly from Toledo and Detroit to Mackinac Island and way ports. Two trips weekly, special steamer, Cleveland to Mackinac Island, no stops enroute except Detroit and Alpena. Special day trips between Detroit and Cleveland during July and August. Daily service between Toledo and Put-in-Bay. RAILROAD TICKETS AVAILABLE FOR TRANSPORTATION on D. & C. Steamers between Detroit and Buffalo or Detroit and Cleveland either direction.

Send two-cent stamp for illustrated pamphlet and Great Lakes map. Address L. G. Lewis, G.P.A., Detroit, Mich.

Detroit & Cleveland Navigation Company
Philip H. McMillan, Pres., A. A. Schantz, V. P. & G. M.
All Steamers arrive and depart, Third Ave. wharf, Det.



You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York

Chicago, Ill. Kansas City, Mo.
East Liverpool, O. Philadelphia, Pa. New Orleans, La.
St. Louis, Mo. Boston, Mass.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.

A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

Represented by
F. W. Weston, 50 Church Street, New York, N. Y.
Charles Riddell, 625 Railway Exchange, Chicago, Ill.
C. H. Peterson, 1610 Wright Building, St. Louis, Mo.
George F. Jones, 407 Travelers Building, Richmond, Va.
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.–CHICAGO, ILL.

The Cement for Paving Brick Grout

Lehigh is High in Strength, Uniform in Color and Fineness. You Don't Have to Guess with Lehigh.

Specify and Use Lehigh in all Brickwork. Remember the Mortar Joint is an Important Factor in the Wall.

Use Lehigh and Cease to Worry.

It Assures Satisfaction Under All Conditions.

LEHIGH CEMENT

plant is running at capacity, and a considerable stock is moving.

The issuance of some of the $4,000,000 bonds voted by the citizens of Kansas City is held up by factional fights in the city council. There is a certainty, however, that among the first bonds issued will be some for making plans for sewers, the entire sewer contracts to result from such plans probably exceeding the total issue of bonds, but to be paid for by special tax bills.

The Kansas City Terra Cotta and Faience Company will close down its plant at Nineteenth and Manchester, about September 1. The company is now operating, cleaning up old contracts and not making new ones. It is said that business difficulties, not detailed, make advisable the move.

Most of the building in Kansas City, Mo., that is opening up now consists of small jobs, for which contracts have practically all been let. Early in August, however, there were several good contracts, including three hospitals, St. Mary's, St. Joseph's and the German. The brick contract for the Moriarty building, near the Union Station, has been let, as well as the contract for the nine-story hotel on Baltimore avenue near Eleventh, and a $175,000 building near the Union Station.

NEW JERSEY

Ground was recently turned for the erection of the J. B. Owen Floor and Wall Tile Company's new plant, at Metuchen, N. J. The concern is located at the present time at Zanesville, Ohio, and is locating at Metuchen in order to be closer to tidewater. The main building will be 100 feet wide and 500 feet long and is to be located on the west side of the Lehigh Valley tracks at Perth Junction.

Thomas H. Thropp was made permanent receiver for the Trent Tile Company, according to an order by Vice Chancellor Backes in the Court of Chancery, at Trenton, N. J. It was represented to the court that the amount of orders on hand and the stock of raw material in possession of the company warranted the continuation of business. The raw material is valued at about $30,000 and the court allows the receiver to use this material in continuing the affairs of the company. The court also gave Thropp permission to borrow $10,000 on receiver's certificates to conduct the affairs of the concern during the receivership.

NEW YORK

The American Enameling Manufacturing Corporation of New York City, N. Y., has been incorporated with a capital of $500,000 to manufacture enameled ware, brick, tile, etc. The incorporators are Samuel B. Howard, Joseph F. Curtis and S. A. Anderson, all of New York City.

Aaron E. Aldridge, vice-president of the Greater New York Brick Company is reported as being ill at his home in Beacon, N. Y. Mr. Aldridge is suffering from a complication of diseases and it has been stated that his condition is critical.

NORTH CAROLINA

The Shale Clay Brick & Tile Company has begun manufacturing brick in its new plant that was recently built at Hot Springs, N. C. Thirty thousand brick per day are being produced and it is expected that hollow tile will be made in the near future.

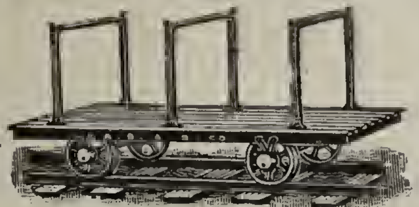
OHIO

A new plant of the Farr Brick Company at Cleveland, Ohio, was partly destroyed by fire a few weeks ago when one of the kilns became overheated.

REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor

ATLAS
High Efficiency
Cars and
Electric Locomotives



No. 126 Double Deck Dryer Car

will meet your requirements. Let us send you catalogue and quote prices.

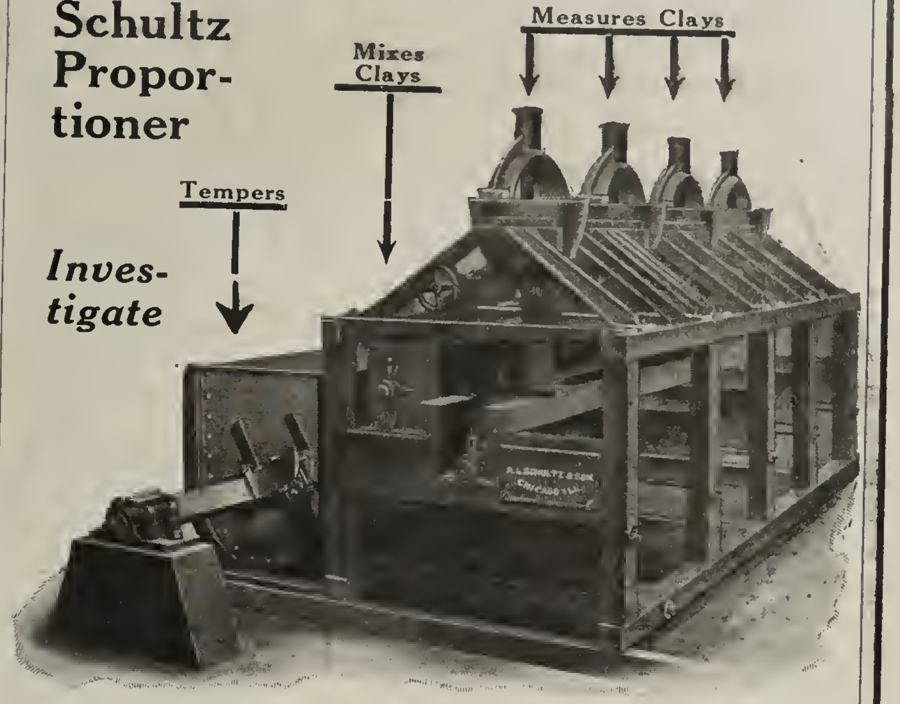
Storage Battery Locomotive for general use.

THE ATLAS CAR & MFG. CO.
Dept.
1287 Marquette Road, Cleveland, Ohio

Automatic—
No attendant required
Three operations—one machine

Schultz Proportioner

Investigate



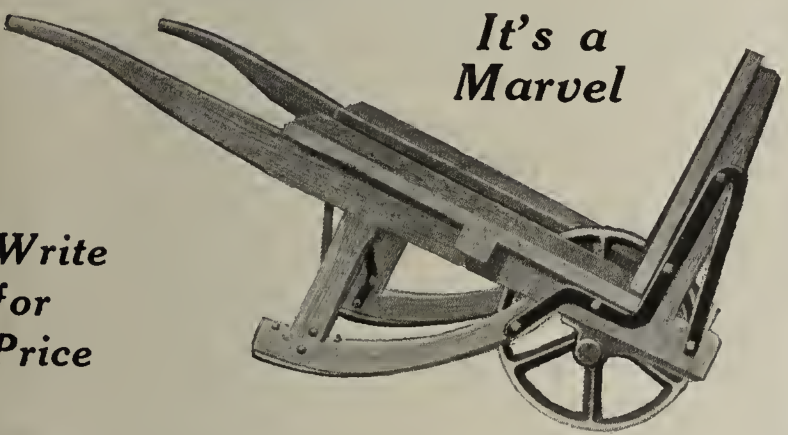
A. L. SCHULTZ & SON
1675 Elston Avenue
Chicago Illinois

The "Invincible" Brick Barrow

Made with babbitted cast iron bearings, seasoned white oak, bent wood runners, cast iron shoes and wrought iron braces throughout.

It's a Marvel

Write for Price



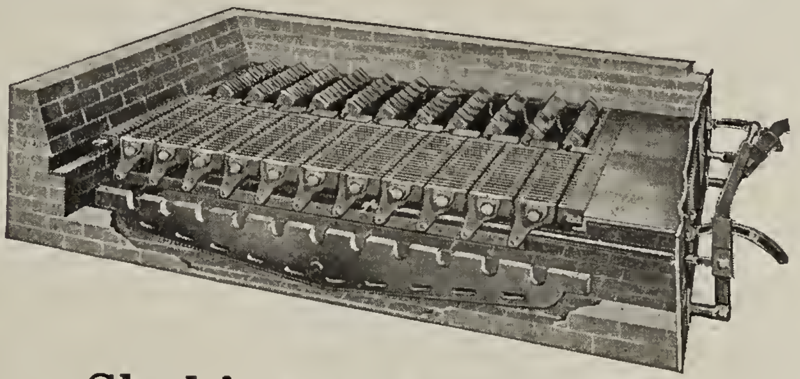
This barrow has become so popular among brick makers that we have hardly been able to supply the demand—but we have made up a good stock for quick shipment.

We also make several other styles—get our catalog and prices before you buy any others.

The Toronto Foundry & Machine Co.
Toronto, Ohio

We make the "MEANS" Pans, Presses and Pugmills and a complete line of supplies for every make of brick machine.

THE CANTON GRATE



Shaking and Dumping

The Canton is the grate to keep your fires clean and free burning, with the least time and labor, and with the fire doors shut. Absolutely no loss of fuel while shaking. It is easily installed. Bars may be replaced while furnace is in operation.

Convenience, Economy, Durability
are three important features, and these combined with simplicity of parts, ease of installation and operation, must convince engineers of the unusual merit of Canton Grates.

Our catalog fully illustrates and describes them. Write for it today.

The Canton Grate Company
1706 Woodland Ave., N. W. CANTON, OHIO

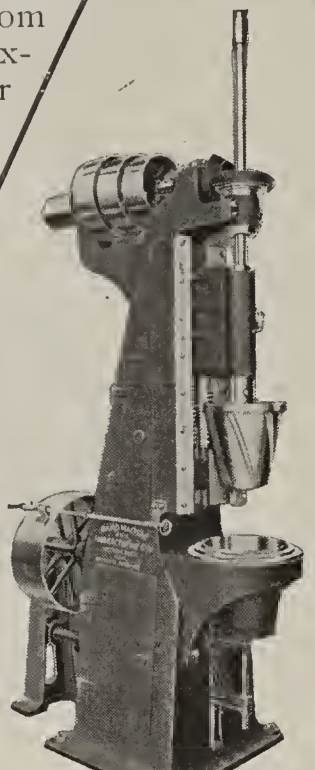
SAY I SAW IT IN BRICK AND CLAY RECORD

A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machineroom men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.



Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

34000 DRY PRESS BRICK

are being made in one day on one four mold machine

Grath Patent Peerless Brick Press

This is not a theory. It is a fact. Do you realize its significance? It means less machinery, less power, less labor, less upkeep and half the investment, to produce first class, dense and mechanically perfect brick — 34,000 per day. It means the difference between LOSS and PROFIT.

Our catalogue illustrates a complete line of brick and roofing tile machinery—we will gladly send you a copy.

ILLINOIS SUPPLY AND CONSTRUCTION CO.
CENTURY BLDG. ST. LOUIS, MO.

U. S. Clay Products Company, Uhrichsville, Ohio, is about to start work on a $95,000 sewer-pipe plant near Gnadenhutten, Ohio.

The tearing up of the west end of the elevated esplanade on Fountain Square, the center of Cincinnati, to make more room on Vine street, brought to light something in the nature of real evidence of the substantial and lasting qualities of brick. Fifty years or more ago a public market house, paved with brick, was located where Fountain Square now is, and in tearing up the esplanade and excavating to the street level, the workmen came upon the old brick paving, quite intact and in an excellent state of preservation. City Engineer Krug ordered a section of it taken up and preserved in a curio room at the city hall, to serve especially as an example of how good work with good materials will last.

OREGON

The Standard Brick and Tile Company of Portland, Ore., has recently secured several large orders for brick to be used in warehouse construction. Contracts for the common-brick to be used in three of this type of building have been obtained which will require a total of 1,400,000 brick.

The Eugene Brick Company's plant at Eugene, Ore., formerly owned by W. O. Cook, has been purchased by Alex. R. Batley, a Los Angeles brickmaker. Mr. Batley is an expert on fire-brick and selected the Eugene clay after making an extensive investigation in search of an Oregon location. His purchase includes the Cook plant and fifteen acres of clay. He will take charge immediately and make a number of improvements in the plant, which will in the future manufacture high-grade building and fire-brick. Under the new ownership the name of the concern is to be changed from the Eugene Brick Company to the Eugene Clay Products Company.

PENNSYLVANIA

Real estate brokers, bankers and builders of Chester, Pa., were recently called together in the office of William I. Schaffer, general counsel for the Baldwin Locomotive Works, and told that Chester would have to provide two thousand new houses for homes for men to be added to the working force of the Baldwin plant at Eddystone.

The Shawmut Clay Manufacturing Company which operates a plant at Drummond, Pa., and of which S. E. Cuttle is general manager, has received another large order from the United States Government for conduit to be used along the Panama Canal, this being the third large order for similar material received by this firm from the same source.

The plant of the Kittanning Face Brick Company, Kittanning, Pa., was recently damaged by fire. The conflagation started in one of the dry sheds and was due to a furnace becoming overheated and spread with great rapidity to the surrounding buildings. Little or no fire apparatus for combating the flame was to be had and the fire was practically left to run its course. Officials of the company estimate their loss at about $25,000.

During the first six months of the present year Philadelphia, Pa., has maintained its reputation as "the city of homes," by building 5,396 two and three-story dwellings, at an estimated cost of $11,849,850. This is the largest expenditure made for dwelling erection during the first six months of any year since 1906, and, with the one exception of 1911, it exceeds the records of intervening years

Follow Me!

"The system installed at our plant has proven very satisfactory. We have burned a 22-foot kiln in as low as 26 hours. This time includes the water-smoking and high fire periods. We are burning coal as fuel at present, but have burned with wood alone and also in connection with coal with equally good results. Our average fuel consumption is about six tons coal per kiln."

This letter from an Ohio concern, and this report from a firm in Wisconsin

"Can burn either of Hook Kilns filled with drain tile in thirty-six hours including watersmoking. The average fuel consumption is five tons coal. Ware is uniformly burned and of good quality clear to the floor."

Are You Coming?

Listen—It's a fact that different companies have often taken tile that were so wet that they could be indented easily with the fingers and placed in the kilns. They set three or four dry courses on the bottom of the kiln, and then place the green ware above. They can burn this ware and secure a good, well-burned product, but of course, must give it a longer time to dry. It would be possible to fill the kiln completely with green ware, and burn it successfully, were it not for the fact that the green ware in the bottom would not support the weight of the other ware above.

So far all this has been written concerning the smaller type of kiln. But—

The system works equally well on large kilns and on kilns burning brick. We know that it will do all this on tile or brick, because we have seen it accomplished dozens and dozens of times. It is not a theory—it is a fact.

It will cost you only two cents to find out all about it, and investigation will pay. Write to the

Hook Patent Kiln Co.
Main Office: Vigo, Ohio
Canadian Office: 250 Dufferin St., Toronto, Ont.

GANDY

Maybe your BELTING requirements are peculiar. Next time try "Gandy."

The big increase in Gandy sales—our sales have grown every year for 36 years—is proof that Gandy Belt does give satisfactory service. What it does for others it will do for you.

Gandy Stitched Cotton Duck Belting

Much less than the cost of either leather belting or rubber belting it often does the work satisfactorily, where other types of belting fail to give results.

You will see how water, oil and dustproof it is; how it grips on the pulleys—how it W-E-A-R-S!

Can we send you samples and quote prices?

The Gandy Belting Company
732 W. Pratt Street, Baltimore, Md.
New York Office—36 Warren Street

Marion
REVOLVING SHOVELS

THE operation shown below speaks for itself. Note that the "long reach" of the Marion boom enables this outfit to work successfully in a deep bank without blasting down the top.

Observe also that the dipper is making a clean, full, straight cut at every sweep —taking away a large bite of clay, as shown by the marks left by the dipper-teeth. This Marion Shovel is helping the profits of the Metropolitan Paving Brick Company in two ways—

Saving Money Digging, and Saving *More Money* by Doing the Mixing at the Same Time

The very favorable experience that the Metropolitan Paving Brick Company have had with their Marion has been duplicated hundreds of times in other brick plants all over the country. Scores of other progressive manufacturers are now falling into line—why don't *you* do the same?

Our interesting booklet "Digging and Mixing Clay—One Operation" is a mighty straightforward, plain-spoken, helpful little book, and we'll be glad to send you a copy on request for Catalog 921.

The Marion Steam Shovel Company,
Established 1884
STATION A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
Manufacturers of Excavating Machinery of Every Description.

7

by from $1,000,000 to $4,000,000. It is a thirty per cent increase over the same period of last year, and represents more than fifty per cent of the expenditure for building purposes from January 1 to June 30, 1915.

The Pennsylvania Brick Company, of New Hope, Pa., has completed the necessary preliminaries to the taking over of the farm of the late Jacob Reeder, in Solebury Township, thus removing the last obstacle in the way of beginning work upon the vitrified brick plant. Right of way and other necessary lands have been purchased from Dr. and Mrs. Edward G. Rhoades and W. W. Cottman along the canal north of the Reading Railway yards, so that it will be possible to extend a branch of the railroad track all the way through the Reeder farm, which is nearly a mile from the station.

SOUTH CAROLINA

The Pee Dee (S. C.) Brick & Tile Company has added drain tile and face-brick to its other burned clay products.

The Peerless Clay Company is building a clayworking plant at Langley, S. C.

TENNESSEE.

The Johnson-Porter Clay Company of Paris, Tenn., has made a number of improvements at its plant and has largely increased its output of clay.

The Southern Refractories Company, which concern succeeded the Southern Clay Products Company at Chattanooga, Tenn., is under the management of W. M. Barker.

The Bristol (Tenn.) Brick Company's plant is to be enlarged, the work progressing under the supervision of A. C. Honaker of Abingdon, Va.

At Maryville, Tenn., the Jackson-Eagleton Brick Company has been organized and projects a brick manufacturing plant with a capacity of from 50,000 to 100,000 brick.

The Kingsport (Tenn.) Brick Company has a capacity of 100,000 brick per day and is running largely on rough-texture face-brick. A new three-story factory has been built in which tile will be made. Ten or more kilns will be added to the battery within a short time.

The Key-James Brick Company, of Chattanooga, Tenn., in one week contracted for deliveries of a million brick to out-of-town builders. Sixty carloads of one order, 600,000 brick, go to the Connally office building in Atlanta. Albany, Ga., gets a quantity and so does Charleston, S. C.

TEXAS

R. A. Ezzell of Beeville, Tex., will, it is reported, install a brick plant at that place.

The Seguin (Tex.) Brick & Tile Company will enlarge its plant and take up the manufacture of interlocking hollow tile.

UTAH

The Provo Pressed Brick Company of Provo, Utah, has just finished its first kiln of red brick and same have already been sold to a local party for the construction of a new residence. This company has been experimenting for some time with a red burning clay but only recently has been able to uncover any quantity of this material.

The Linden Development Company, Linden, Utah, has been incorporated with a capital stock of $20,000 to carry on a general mining business, special attention being given to the mining of fire-clay and the manufacture of clay products. The directors and officers of the new company are: C. G. John-

Seven Sizes
$950 to $4350

There is a KisselKar Truck to Exactly Suit Your Needs

The new line of KisselKar Trucks was designed to meet every haulage requirement.

There is one to fit **your** business—to exactly suit the peculiarities of your delivery problems.

No necessity to adjust your system to the truck—the truck will adjust itself to your system.

KISSELKAR TRUCKS

The new series is priced as follows:

1000-lb. delivery	$ 950
¾ to 1-ton truck	1500
1 to 1½-ton truck	1750
1½ to 2-ton truck	2100
2½ to 3-ton truck	2750
3½ to 4-ton truck	3350
6-ton truck	4350

Our new truck portfolio is ready with full specifications and details, besides hundreds of illustrations. It is sure to interest you—send for it today.

Kissel Motor Car Co., 568 Kissel Ave.
Hartford, Wis.

New York, Boston, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Iowa; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

THE THEW SHOVELS

Facts About the Thew Gasoline Shovel—

Ideal for Digging Clay and Shale

Type 0 Thew Gasoline Shovel— ¾ yard Dipper

NOT AN EXPERIMENT. With the exception of the power equipment and the means of transmitting it, the Thew Gasoline Shovel is exactly like standard Thew Shovels, whose record is substantially established. Power is supplied by a 35 horsepower gasoline engine of standard make.

A ONE MAN SHOVEL. This shovel requires but one operator. The few levers necessary to control the mechanism are within easy reach and the machine can work without interruption, as no time need be taken for firing.

REDUCED OPERATING COST. The gasoline engine uses only two gallons of fuel per hour at a cost of from 20 to 30 cents, and a barrel of gasoline will last 3 days.

WATER SUPPLY. A small supply of water is needed only to cool the gasoline engine and when the water tank is filled up, it will last for a week or longer. A non-freezing mixture does away with the danger of freezing in winter.

BOILER TROUBLES AVOIDED. The gasoline engine takes the place of the boiler, and, therefore, no state or local boiler requirements are to be conformed to, and no boiler insurance or other boiler expense must be encountered. All boiler troubles and expense for maintenance are done away with.

These and other advantages are explained in special gasoline shovel circular—a copy of which will be sent on request.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send me circular of gasoline shovel with explanation of its advantage in clay pits as advertised in "Brick and Clay Record."

Name ____________________

Address ____________________

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

SAY I SAW IT IN BRICK AND CLAY RECORD

The
Underwood Producer Gas
Burning System
(Patented)
For Periodic Kilns

Is not an experiment—it's a proven success and is giving eminent satisfaction in every plant where it has been installed.

Here's what the president of one of the largest and most successful brick and tile companies in the Middle West wrote recently to an Ohio brickmaker, who asked for information as to the working of the Underwood system in actual practice:

". . . the more we use it the better we like it. It certainly is the only way to burn ware because you have absolute control of the heat and air. It obviates hauling coal around the kilns and carting cinders away. We are getting better results from every burn. . . . We burned last two kilns with 52 tons coal in 73½ hours. Formerly the same quantity required 90 tons coal and 168 hours. We are making rough texture brick and they are beauties."

(Name on request.)

Isn't that convincing evidence? Why don't you ask us for the names and addresses of those who are using the Underwood System? Write them yourself—or go to see them. Then we know you'll send for us.

The Manufacturers Equipment Company
Everything for the Clayworker
Dayton, Ohio, U. S. A.

son, president; E. T. Culmer, vice-president; and A. L. Cullimore, secretary and treasurer. F. L. Culmer and L. G. West are also members of the board. The company owns fire-clay deposits situated east of Linden.

The Provo (Utah) Pressed Brick Company has installed new machinery for the manufacture of drain tile and is reported as doing a large and profitable business in this product. The success which has followed efforts to reclaim the lowlands on the east side of Utah Lake by drainage has given a big impulse to drainage undertakings all along the shore of the lake from Lincoln Beach on the south to Lehi on the north. The land when drained is extremely fertile and owners are now preparing to drain thousands of acres.

VERMONT

Gilbert A. Bourlet and Charles G. Blanchard, both of Hartford, Vt., have established a plant for the manufacture of brick and other products at Claremont, N. H.

VIRGINIA

Warner J. Kenerdin has started a brick plant at Radford, Va.

The Kincaid Brick Company of Boons Path, Va., will erect two new kilns in the near future and change those at present standing from up-draft to down-draft.

WASHINGTON

The Lake Union Brick and Fireproofing Company, Seattle, Wash., has been incorporated by Charles Engelbricht and Thomas R. Yerger, with a capital stock of $10,000.

The plant of the Washington Brick, Lime and Sewer Pipe Company, near Spokane, Wash., was recently visited by thirty members of the Spokane Chamber of Commerce. The party was guided by President J. H. Spear, Secretary A. L. Ruff and Victor Piolett, sales manager of the company, who showed the visitors every stage of the work from the gathering of the raw clay to the loading of the finished pipe. This plant is now operating at a little less than full capacity, which is three carloads of finished sewer-pipe each day.

WEST VIRGINIA

The Mannington (W. Va.) Brick Works has completed the erection of the main buildings at its new plant, located in the town from which it is named.

The Greenbrier Shale Manufacturing Company, which recently was incorporated, will manufacture brick at Pence Springs, W. Va.

The Wayne (W. Va.) Brick & Tile Company's plant is about complete and it is said that it will be operating within the present month.

The Savage Mountain Fire Brick Company of Piedmont, W. Va., has enjoyed a large export trade, shipping a great deal of its product to South America.

The Wayne (W. Va.) Brick and Tile Company has twenty-eight acres of clay and shale land and will establish a brick plant. H. S. Heffner, one of the head men, is of Barboursville, W. Va.

H. B. Sheetz of Charlestown, W. Va., has sold the Valley Brick Plant and fifteen acres of land which was a part of the Valley Brick Company's property. The name of the buyer has not been made public.

WISCONSIN

Marshfield, Wis., is to have a new brick plant. Louis Hartl, president of the Marshfield Brewing Company, and Ernest Krause, a practical brick man, are the prime movers.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

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Alton Brick Co., Alton, Ill.	4
Keller Brick Co., The, Cuyahoga Falls, O.	8
Metropolitan Paving Brick Co., Canton, O.	5

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Hydraulic Press Brick Co., St. Louis, Mo.	7
Ironclay Brick Co., Columbus, Ohio	8
Keller Brick Co., The, Cuyahoga Falls, O.	8
Kimbell Brick Co., S. S., Chicago, Ill.	6
Metropolitan Paving Brick Co., Canton, Ohio	5
Stark Brick Co., Canton, O.	8

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Bessemer Limestone Co., Youngstown, O.	5
Big Four Clay Co., Canton, O.	6
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Trade Names Now in Use
on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., Wellsville,O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Stanton—Edward S. Stanton, Cleveland, Ohio.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Twin Tex—Sheldon Brick & Building Supply Co., Urbana-Champaign, Ill.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
Velvet-Nap—W. B. Ferris Brick Co., Columbus, O.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vitrified Velvet—Adel (Ia.) Clay Pro. Co.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Fire Brick Facts For Kiln Builders

Do not overlook the quality of Fire Brick used in inner walls, crowns and fire arches of your kilns; this is all important. When fire brick begin to give away the whole kiln is impaired.

No brick construction will stand under strain of gradual contraction account of poor quality fire brick.

Consult us in advance of placing your orders.

Davis Fire Brick Co. Oak Hill, O.

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

Jos. Soisson Fire Brick Company

General Office,
Connellsville, Pa.

Sales Office,
Bolivar, Pa.

J. B. Hammond, Sales Manager

Mexico Brick & Fire Clay Co.
Mexico, Mo.

HIGH GRADE MEXICO FIRE BRICK TRADE MARK

Manufacturers of
High Grade Fire Brick
and Special Fire Clay Shapes

Fire Brick and Floor Tile for Brick and Tile Kilns a Specialty

Established 1856

HENRY MAURER & SON

Manufacturers of
High Grade Fire Brick

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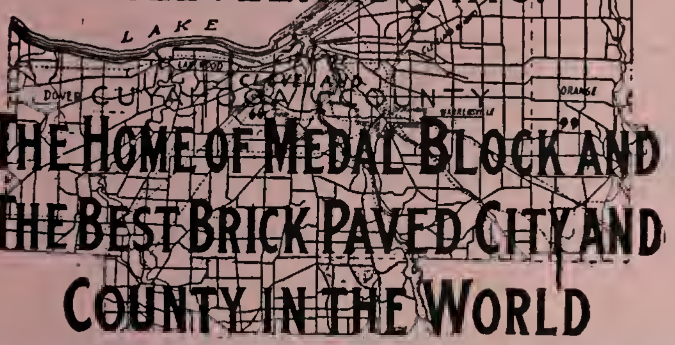

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Kissel Motor Car Co.

Turntables.
Jackson & Church Co.
Chase Fdry. & Mfg. Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co., The.
Toronto Fdry. & Machine Co.

Unloading Devices for Pans.
Clearfield Machine Shops.
Toronto Fdry. & Machine Co.

Wagons.
Manufacturers Equipment Co.

Watchman's Clocks.
Hardinge Bros., Inc.

Waterproofing.
Johns-Manville Co., H. W.

Wet Pans.
Jackson & Church Co.
Toronto Fdry. & Machine Co.

Wheelbarrows.
(See Barrows and Trucks.)

Wheels and Axles.
Toronto Fdry. & Machine Co.

Winding Drums.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Weller Mfg. Co.

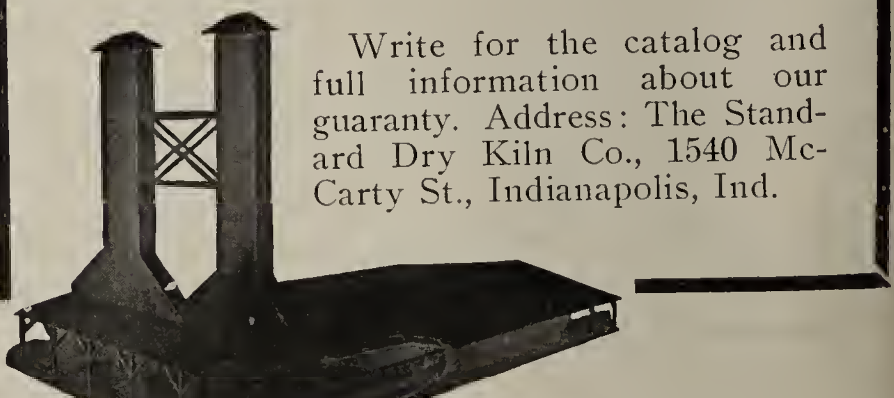
Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

2 "But," you ask, "how can I be *sure* that The Standard Drying System will prove a success with *my* clay?" You have *two* assurances that it will.

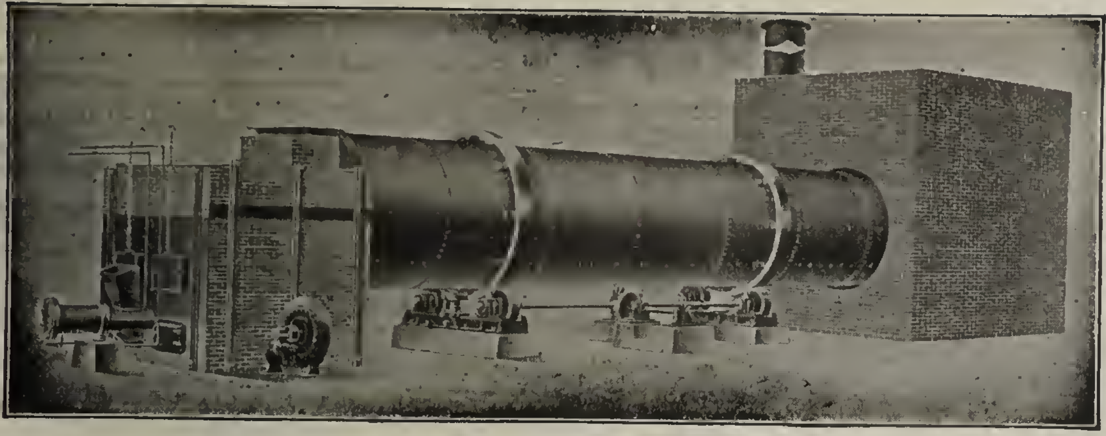
First, you have the evidence of The Standard Drier's success at other brick plants where the clay is of the same nature as yours. We'll send you the names of these other brickmakers and you can write them direct for the facts.

Second, you are protected by the plain written guaranty that goes with every Standard Drier. The drier **must** do all we claim. It **must** dry your product to your complete satisfaction.

Write for the catalog and full information about our guaranty. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



SAY I SAW IT IN BRICK AND CLAY RECORD



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON
It Assures Uniform Product
YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

THE CHASE DRYER CARS
With patented flexible and reversible boxing and roller bearings

The *Best Equipment* is the Equipment that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio

BRUCE-MACBETH GAS ENGINES
CLEVELAND
VERTICAL MULTI CYLINDER FOR PRIVATE AND CENTRAL STATION POWER PLANTS

General Traffic Association, Inc., Woodward Building
WASHINGTON, D. C.

Composed of expert traffic men and attorneys who practice before the Interstate Commerce Commission, the various State Commissions and all the Courts.

Freight bills audited, claims for overcharge and loss and damage collected, cases prepared and handled before the Interstate Commerce Commission, where shippers and receivers feel that existing rates are unjust, excessive, inequitable, unreasonable or discriminatory, or will assist attorneys or traffic organizations in the preparation of cases. Correspondence solicited.

TILE MAKERS Increase Your Sales By distributing to Farmers and others interested in Drainage the Pamphlet entitled

"HINTS ON FARM DRAINAGE"

PRICES:

100 copies	$3.00
200 copies	5.00
300 copies	$ 7.00
500 copies	12.00
1000 copies	$17.00

On orders of 500 or more the name and address of purchaser will be printed free on outside cover. Send for sample.

BRICK AND CLAY RECORD
445 Plymouth Court
Chicago

OSGOOD

"18" ¾-yd. Traction Revolving Shovel with independent steam steering engine, also combination hand steering operated from either side of shovel.

The Marion-Osgood Company

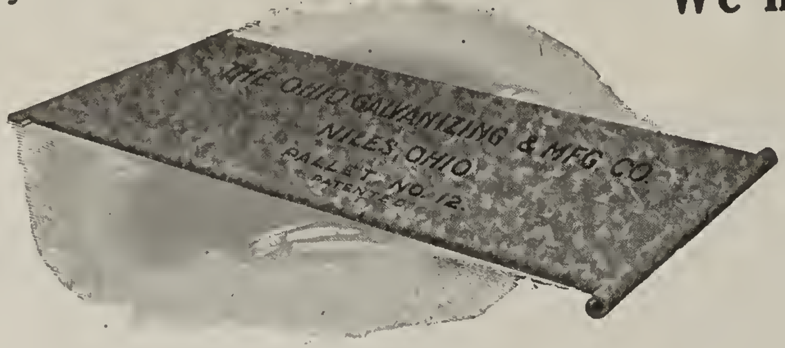
Marion, Ohio, U. S. A.

Eastern Office: 51 State Street, Albany, N Y.

Chicago Agency:	New York Agency:	Philadelphia Agency:
The M-C-B Co., McCormick Bldg. Phone Har. 6365.	M. E. Davis, 1682, 50 Church St.	J. M. Reed Co., Inc., 516 Commercial Trust Bldg.

STEAM SHOVELS **DIPPER DREDGES**

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.

Niles, Ohio

Here is a Kiln Built with Common Sense

The Schaffer Semi-Continuous Kiln is revolutionary only in that it follows Nature's Laws. The average kiln builder gets confused in the maze of dampers, tunnels, forced draft systems, etc., and before he gets through he has upset Natural Laws and seeks to make fuel and heat do impossible things.

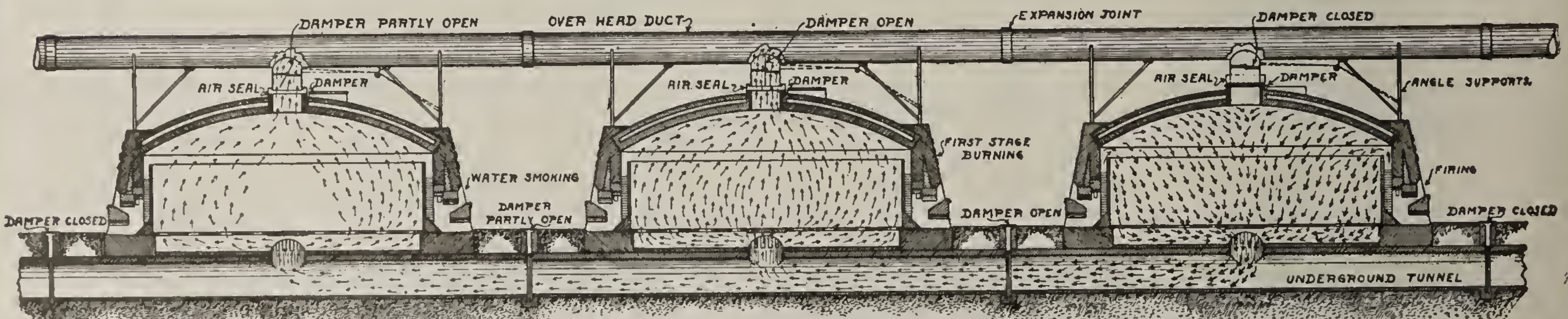
The Schaffer Semi-Continuous Kiln utilizes well-known principles

There is no magic about it—no hocus pocus—now-you-see-it-now-you-don't—stunts. Just plain, common sense, mixed with practical experience and engineering ability.

We have a pamphlet that tells all about this sensible kiln—SEND FOR IT

The narrow confines of this ad will not permit us to tell you just HOW and WHY the Schaffer Semi-Continuous Kiln is built, but we have a pamphlet that tells the story briefly, but completely. We would be pleased to send you a copy.

THE SCHAFFER ENGINEERING & EQUIPMENT CO., Inc, Tiffin, Ohio

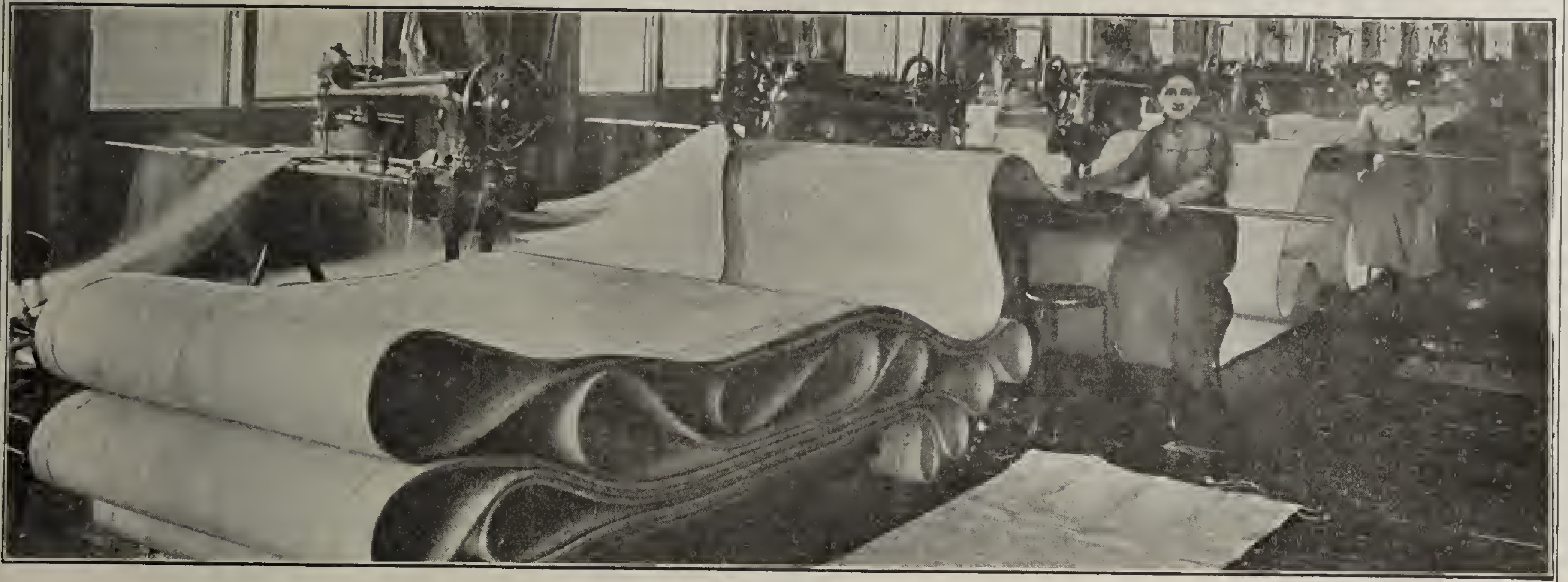


SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

Patent Allowed

SAY I SAW IT IN BRICK AND CLAY RECORD

Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

Three Hundred Cubic Yards of Tough Clay in One Day

That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will **dig and deliver**—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.

SAY I SAW IT IN BRICK AND CLAY RECORD

Reduced Operating Costs

Reduced cost is what every brick manufacturer wants now, when the demand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

Westinghouse Electric & Manufacturing Co.

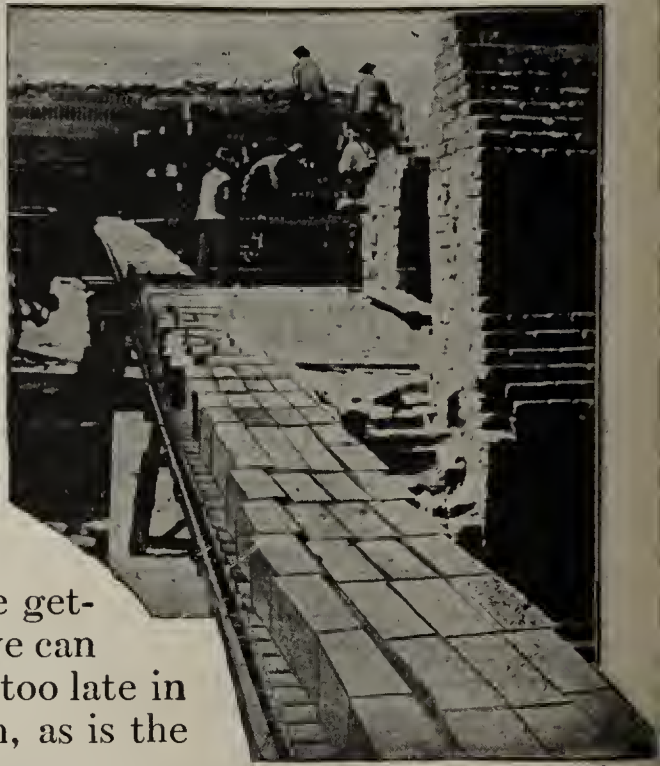
Sales Offices in all Large American Cities

East Pittsburgh Pennsylvania

A Steady Stream of Brick From Kilns to Cars.

The Mathews Patented Gravity Brick Conveyer Doubles the capacity of every man in your Car-Loading Crew.

A Mathews Gravity Brick Loading System will prove its full worth when the rush orders commence to come in. Then you will wish you had taken the time early in the spring to get together with us to study out your problems. Right now we know there are many brick men who will not attempt to handle their brick another year with wheelbarrows. Every day we are getting letters from manufacturers who are anxious to know what we can do for them. There are a great many others who will wake up too late in the season for us to help them, as is the case every year.



Our Expert is at your service.

Catalog and Detail Information sent on request. We will not be able to fill orders quickly late in the season.

SPEED
The Mathews Way
MATHEWS GRAVITY CARRIER COMPANY
The Saving Way
ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

SAY I SAW IT IN BRICK AND CLAY RECORD

DOES IT PAY TO HAUL DEAD LOAD?

Although clearly set forth in Bulletin B, we find that the following point needs the emphasis of a special advertisement.

In the old type of tramway with underhung buckets the dead weight of the buckets alone is usually about equal to the live weight transported. But there are as many buckets returning empty as are going out loaded; hence there is twice as much dead weight being moved at any moment **in the cars alone,** exclusive of hauling cable, as there is useful live weight. Each Lawson car, on the other hand, will transport a live load about six times its own dead weight. Allowing for the empties returning, this means that there is three times as much live weight moving at any moment as there is dead weight to carry it.

What We Do It With

Put in another form, this means that in the bucket tramways the dead load is **double the live load,** and in the Lawson tramway is **one-half the live load**—a ratio in favor of the Lawson transportation of 4 to 1. Moreover, this dead load, like "the poor, we have always with us," whether the tramway is running to capacity or not.

This is a bad matter, but worse remains, since the weight of the haul rope itself is usually twice as great for a bucket tramway as for the Lawson Tramway—and this again is non-paying dead load. All the above bears directly on the earning capacity. An amplification of this subject can be found in our Bulletin B under the heading of POWER REQUIRED.

Respectfully submitted,

AMBURSEN COMPANY (Tramway Department) **61 Broadway, New York**

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wood Moulds
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs Upon Request

CHICAGO BRICK MACHINERY CO.
20 W. Jackson Boulevard
CHICAGO, ILL.

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—Superintendent for dry-press and stiff-mud plant. Must be absolutely competent and familiar with all lines of brick and hollow tile manufacture. Gas fired continuous kiln in connection. Applications must be accompanied by gilt-edged recommendations. Will consider selling desirable party a small lot of stock. Address: 8-BC, care of "Brick and Clay Record." 8-2-1

WANTED—Good inside foreman, man capable of taking care of machinery and manufacturing end of face brick plant. Address: 8-B, care of "Brick and Clay Record." 8-2

WANTED—Efficient superintendent for face brick plant. Address: 8-BE, care of "Brick and Clay Record." 8-2-1P

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—POSITIONS.

SITUATION WANTED—By a man who thoroughly understands the clay business from pit to office, including the selling, and also thoroughly understands the manufacture of high-grade face brick, fire brick, common brick, sewer pipe and fireproofing; also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of fuel and the successful handling of all kinds of dryer troubles and kiln troubles. A first-class handler of labor to get results. Wants to get with a concern where ability will be recognized. Address: 8-R, care of "Brick and Clay Record." 8-1P

POSITION WANTED—As superintendent, by young man who has had ten years' experience in face brick and refractories. Can handle work in both office and factory. Can install modern office systems and task and piece work in factory. At present employed and can give best of references from both present and former employers. Do not ask any contract, but am willing to let my work speak for itself. Address: 8-BB, care of "Brick and Clay Record." 8-2-1P

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacture of common and face brick, pavers and drain tile. Have used all kinds of clays and up and down-draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address: 7-C, care of "Brick and Clay Record." 7-4P

WANTED—EQUIPMENT

WANTED—Large second-hand Freese brick machine. Address: 8-BT, care of "Brick and Clay Record." 8-2-1

FOR SALE—CLAYWORKING PLANTS.

BRICK AND TILE PLANT — Thoroughly equipped and up-to-date, with plenty of clay and railroad trackage in Southwestern Minnesota, with an undisputed territory of 100 miles on three lines of railroad. Will be for sale or lease this winter. For particulars address: 8-A, care of "Brick and Clay Record." 8-2

FOR SALE OR RENT—On very reasonable terms, a most desirable face-brick plant. Located in Eastern Pennsylvania. Big money in it for capable brickmaker with very small capital. Address: 8-BA, care of "Brick and Clay Record." 8-2-1

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—MINERAL LANDS

MINERAL LANDS

We have limestone lime, suitable for fluxing, and soil correction and cement; also sandstone, 99 per cent silica, suitable for moulding or fire brick. Near railroad within 100 miles of Chicago. Address: Thomas Crigler, Sec., Attica Commercial Club, Attica, Ind. 8-2-1

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—One Monarch No. 6 soft-mud machine and sander. This machine made less than one million brick. We bought this machine for experimental purposes and have no further use for a soft-mud machine. Address: 8-X, care of "Brick and Clay Record." 8-2

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—Second-hand multigraph machine in first-class condition. Will make special time inducements. Address: 5-BP, care of "Brick and Clay Record." 5-2-1.

FOR SALE—Stockbridge crank shaper. New and not used. This is a 24-inch shaper with back gear, and patent two-piece crank with quick return motion. Price paid, $625.00, and must be sold. Address: 6-C, care of "Brick and Clay Record." 6-TF

FOR SALE CHEAP—125 h. p. boiler, 100 h. p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address: J. F. Vogan, Franklin, Pa. 4-TF

FOR SALE—One 4-mold Penfield dry press in good condition. Address: Hydraulic-Press Brick Co., 403 Rialto Bldg., Kansas City, Mo.

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE CHEAP—Chambers No. 5 brick cutter, side cut, 24 ft. offbearing belt. Used but few months, absolutely good as new. Standard Brick Mfg. Co., No. 8 Furniture Bldg., Evansville, Ind. 7-2-3

FOR SALE—Practically new: One 40 h.p. one 60 h.p. high pressure boiler, one 100 slide valve engine, 9 ft. American dry pan clay elevator, No. 88 Brewer brick and machine, Fayet's end-cut cutting table, pulle shaft and boxing, Pulsometer steam pump No. 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

MISCELLANEOUS

IF YOU ARE A MANUFACTURER OF FIRE BRICK I will show you how under a new process and by use of a new basic material never before used you can manufacture a brick which will stand more HEAT than any other brick that has ever before been on the market and at a lower cost. If you are interested in such a proposition answer this advertisement. Address: 8-BO, care of "Brick and Clay Record." 8-2-1P

PATENTS

Inventions Protected.
Trade Marks Registered.
Patents Investigated.
Established 1895.

HUBERT E. PECK.
635 F. St., Washington, D. C.

RAILS

all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.

STEEL RAILS.

All sections, New and Relaying, in stock for immediate shipment.

Second-hand rails cut to any lengths desired for all purposes.

Also Frogs, Switches, Spikes and Bolts.

M. K. Frank, Pittsburgh, Pa.

Remember what Mr. Carl B. Harrop, E. M., said before the National Brick Manufacturers' Convention at Detroit:

"Seldom is any attention paid to the cracks which appear from time to time in the outside walls of kilns and it may be interesting to give some consideration to their influence on the heat economy of a kiln. An opening 3 inches in diameter causes a loss of 981 pounds of coal in a 7 days' burn."

JOHNS-MANVILLE SERVICE

COVERS THE CONTINENT ©

No. 32 High Temperature Cement is highly recommended for saggers used in the manufacture of porcelain, china, vitrified abrasive wheels, etc. It will prevent the gas from causing blisters in the ware by coming in contact with the parts to be burned and will enable the saggers being repeatedly used again.

We not only wish to tell you this—but will be glad to prove it if you write today to the nearest branch. We will do the rest.

This will interest every Brickmaker

You may not have **one** crack in your walls of the size Mr. Harrop mentions, but the sum of many smaller fissures total up to a far greater loss. And this costs money.

The numerous cracks always occur after a short while when cement mortar or fire clay is used. For laying up the walls and arches of your kilns we suggest the use of the

J-M Treatment for Brick and Pottery Kilns

This treatment includes the use of two cements—one for the protection of fire-brick edges against excessive and soaking heat—**No. 31 J-M High Temperature Cement.** The other to protect the fire-brick faces from uneven temperature stresses which cause cracks, spawls and disintegration—**No. 32 J-M High Temperature Cement.**

By employing **No. 31 J-M High Temperature Cement** as a mortar for the fire brick courses, the brick edges are sealed up in a wall of vitrified cement that will resist any range of temperature to which your kiln will be subjected. It vitrifies at a comparatively low furnace temperature and maintains this condition up to 3187° F., its fusing point.

No. 32 J-M High Temperature Cement is applied to the brick faces by painting. It fills the brick and thus protects them from uneven temperature stresses. This greatly increases the life of the kiln masonry and prevents the falling of disintegrated brick particles.

H. W. JOHNS-MANVILLE CO.

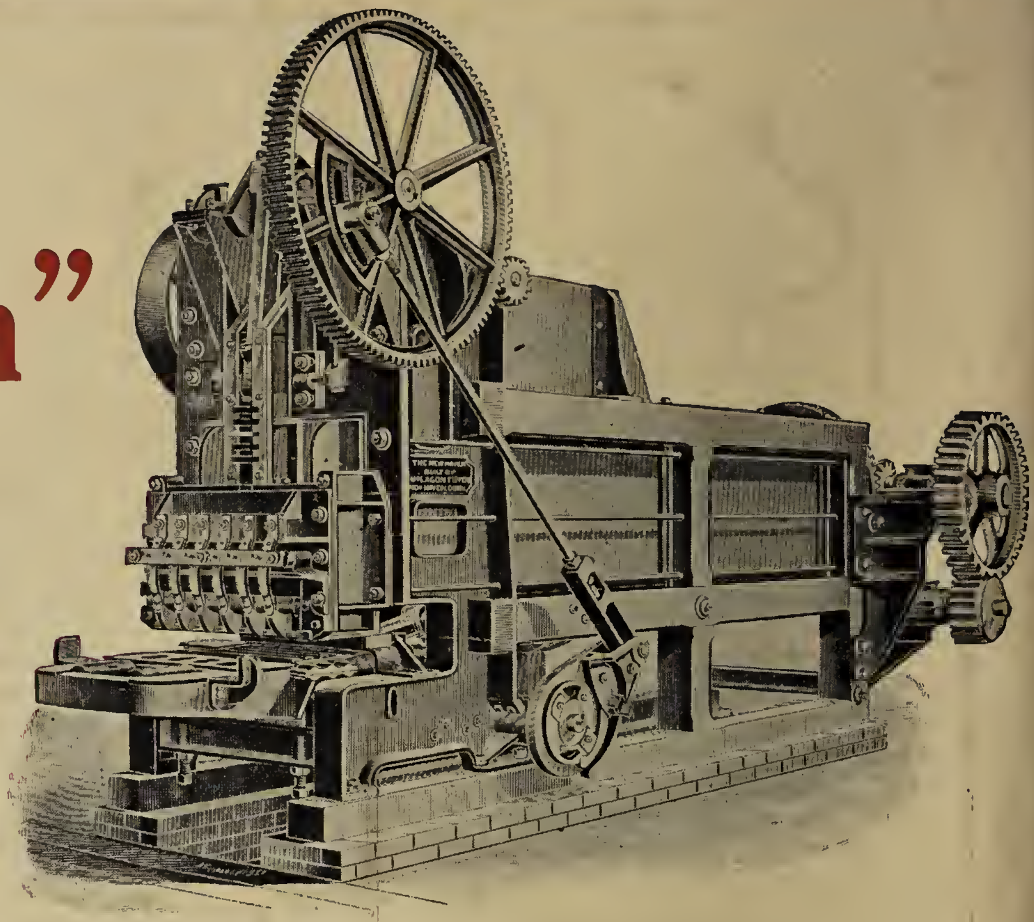
Akron
Albany
Atlanta
Baltimore
Birmingham
Boston
Buffalo
Chicago
Cincinnati
Cleveland
Columbus
Dallas
Dayton
Denver
Detroit
Duluth
Galveston
Houghton
Houston
Indianapolis
Kansas City
Los Angeles
Louisville
Memphis
Milwaukee
Minneapolis
Newark
New Orleans
New York
Omaha
Philadelphia
Pittsburgh
Portland
Rochester
St. Louis
St. Paul
Salt Lake City
San Francisco
Seattle
Syracuse
Toledo
Washington
Wilkes-Barre
Youngstown

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED,
Toronto Winnipeg Montreal Vancouver

3309

SAY I SAW IT IN BRICK AND CLAY RECORD

The "New Haven"



One Million Brick Per Month for Twenty Years—Day in and Out—is An Unusual Record—But Not for the "New Haven!"

In constructing the "NEW HAVEN" we have put in *everything* that makes for *efficiency, quality* and *speed* in turning out Brick. That we have succeeded—ask others—those who have used it for over twenty years and are *still* using it with the best of service and unimpaired efficiency.

The "NEW HAVEN" Soft-Mud Brick Machine is a marvel to do the work that it *does*—to last as long as it *does!*—and satisfy as long as it *does!*

While the "NEW HAVEN" is somewhat higher in price than some others, it is remarkably better in *service*. The repairs that you *don't* have to put into the New Haven offset the difference in price over and over—besides you have a Brickmaking Machine that doesn't have to be watched—all it's got to be is operated—and it will turn out profits as fast as it turns out your brick. Write for prices and complete information. Both will please you.

The Eastern Machinery Company

New Haven, Conn.

BRICK and CLAY RECORD

"We could not drive our battery of Dry Pans direct-connected satisfactorily from the motors, until we equipped them with the

LINK-BELT SILENT CHAIN DRIVE

They have been in operation now for seven years and we have had absolutely no trouble with either the chains or the motors."

That's what the superintendent of one of the largest clay working plants in the middle west said regarding the performance of his Link-Belt Silent Chain Drives.

Send for new Bulletin No. 91 giving information of interest to every man operating clay working machinery. It's free.

Link-Belt Silent Chain
The Ideal Drive For
Clay Working Machinery

LINK-BELT COMPANY
PHILADELPHIA CHICAGO INDIANAPOLIS
BULLETIN No. 91

Write for this BOOK Today

LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

New York 299 Broadway
Boston 49 Federal Street
Pittsburgh 1501 Park Bldg.
St. Louis Central Nat'l Bank Bldg.
Buffalo 698 Ellicott Square
Detroit 911 Dime Bank Bldg.
Cleveland Rockefeller Building

Seattle 580 1st Ave., South
Denver Lindrooth, Shubart & Co.
San Francisco Meese & Gottfried Co.
New Orleans Whitney Supply Co.
Birmingham General Machinery Co.
Los Angeles 204 N. Los. Angeles St.
Minneapolis Link-Belt Supply Co.

Look for the Name on the Washers
Look for the Liners in the Joints

Vol. XLVII, No. 5 Chicago September 7, 1915

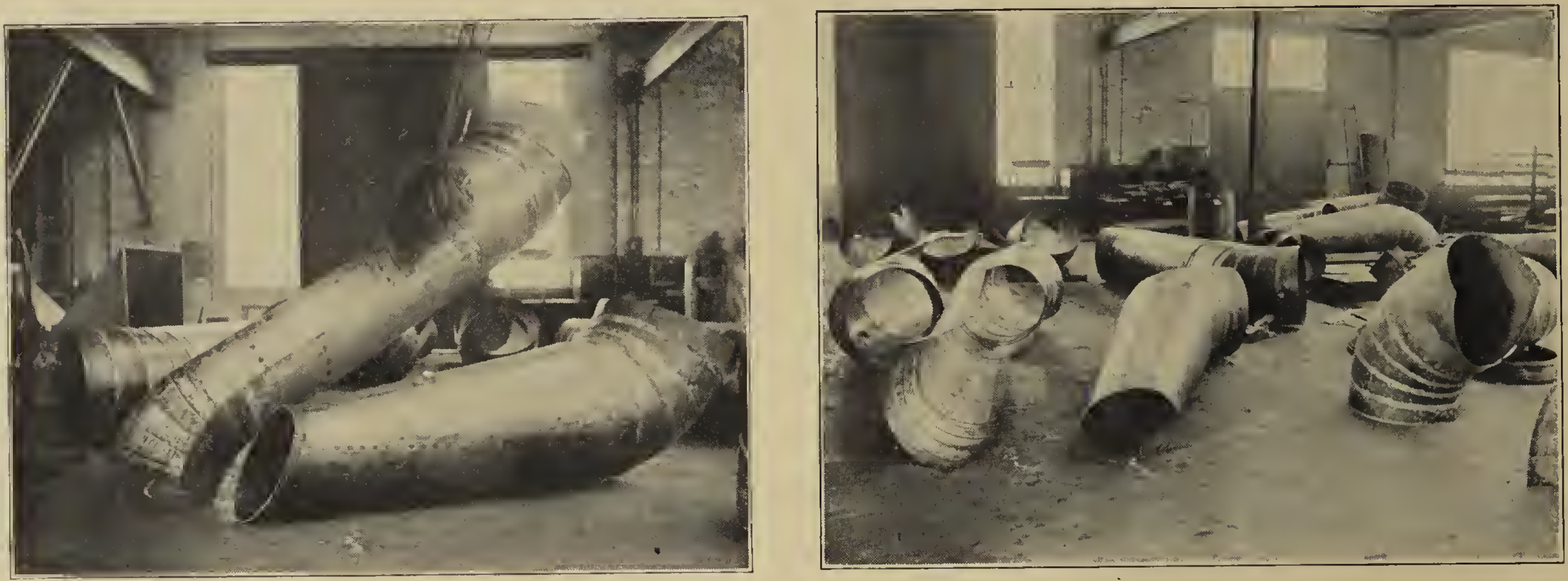
WELLER-MADE

STEEL SPOUTS AND FORMS

There are many places around clay working plants where different materials must be spouted in various directions.

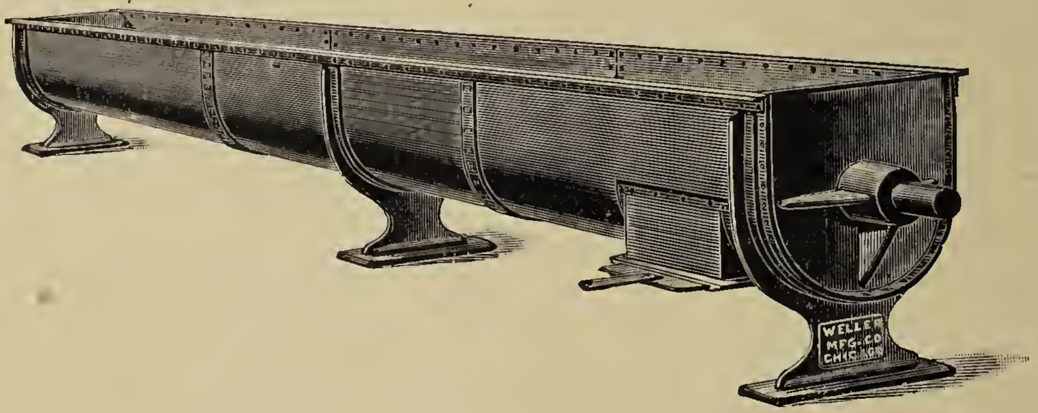
Plain Riveted Steel Spouts, Any Diameter and Guage of Metal up to ¼-inch.

Sometimes plain straight spouts will do the work. Other times the material must flow around corners and at odd angles.



Odd Shaped Special Spouting Ready for Shipment in Our Shops.

No matter what your requirements in the line of standard or special steel work of this kind if you want the best, we can fix you up.



Spiral Conveyor Boxes and Forms.

On a straight price basis we may not be the lowest, but on the wearing qualities of the metal, the neat superior finish and the general satisfactory service and treatment, there is positively no one who will give you more for your money.

We Know How to and Do Build Good

Elevating, Conveying and Power Transmitting Machinery

WELLER MFG. CO., - - Chicago

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Trautwein
DRYERS

THE LAST WORD IN CLAY PRODUCT DRYING

TRAUTWEIN DRYER & ENGINEERING CO.
417 SO. DEARBORN STREET
CHICAGO

AGAIN WE SAY:

THE CLAUDE SMITH KILNS

FOR BURNING CLAY PRODUCTS

ARE THE BEST WHICH EXPERIENCE AND LABOR CAN PRODUCE

Our Bulletin Tells You Why

CLAUDE SMITH COMPANY
KILN BUILDERS
PLYMOUTH BUILDING, CHICAGO, ILL.

Service to Clayworkers

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Looking Ahead

Too often are we prone to procrastinate — especially at the close of the season's work, because we feel the effects of the arduous duties that have devolved upon us through the year.

We are too prone to allow our desire to "let down", influence us to the extent that we get away quick (mentally) from the scenes of our labors. That is the natural tendency and perhaps we should not be too severe on those of us who succumb.

Yet our observation has demonstrated to us that the most successful of our manufacturers are those who, at the close of the season, immediately set about to inquire into the inefficiencies and deficiencies of the year. Being closer to the situation than at any other time, they are less likely to overlook anything.

Try this yourself NOW, or at the end of your regular season—look carefully over your machinery, equipment and methods. It would even pay you to call in an expert to help you decide as to what you can and should do to improve the quality of your ware, or to manufacture it at a reduced cost.

And it's also a good idea to look well into the newer equipment and methods advertised in these columns—you might see in the suggestions offered something that will help you.

Anyway it's certainly better to have FORESIGHT than regrets.

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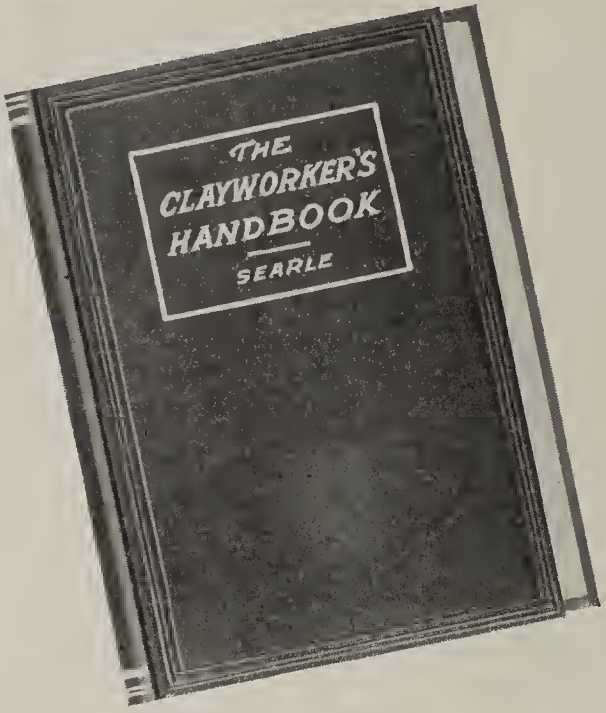

416 Pages, 7½ x 5, 32 Illus. - $2.00

NO BETTER INTRODUCTION to this volume can be given than to make the statement that it is written by Alfred B. Searle, author of "Modern Brickmaking" and many other books of interest and value to clayworkers. In the preface to the second edition, the author says: "It should be remembered that the present volume is chiefly intended as a guide to those actually engaged in the routine of clayworking and for this reason Illustrations and detail descriptions of machines have been omitted. The chief problem of most clayworkers consists in getting the best work out of the plant provided for them rather than in ascertaining the best plant for the particular clay or for a special kind of ware."

There is no doubt but that this volume helps clayworkers to solve this "chief problem" and will help them to get the best work—which means increased output and more perfect ware—out of the plants that they are working.

It is on sale, through "Brick and Clay Record's" Book Department, at $2.00, postage paid.

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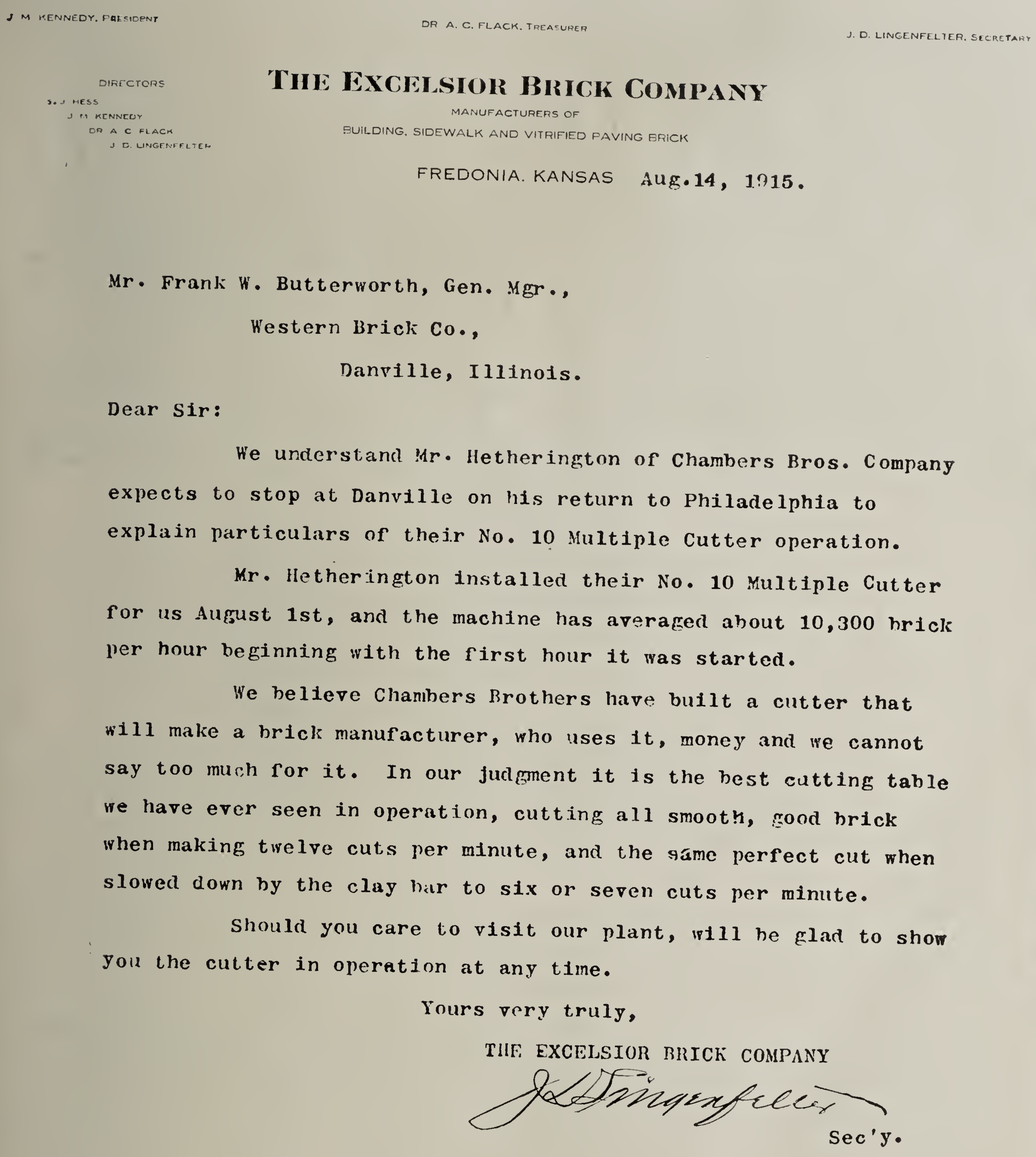

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Mr. Hetherington installed their No. 10 Multiple Cutter for us August 1st, and the machine has averaged about 10,300 brick per hour beginning with the first hour it was started.

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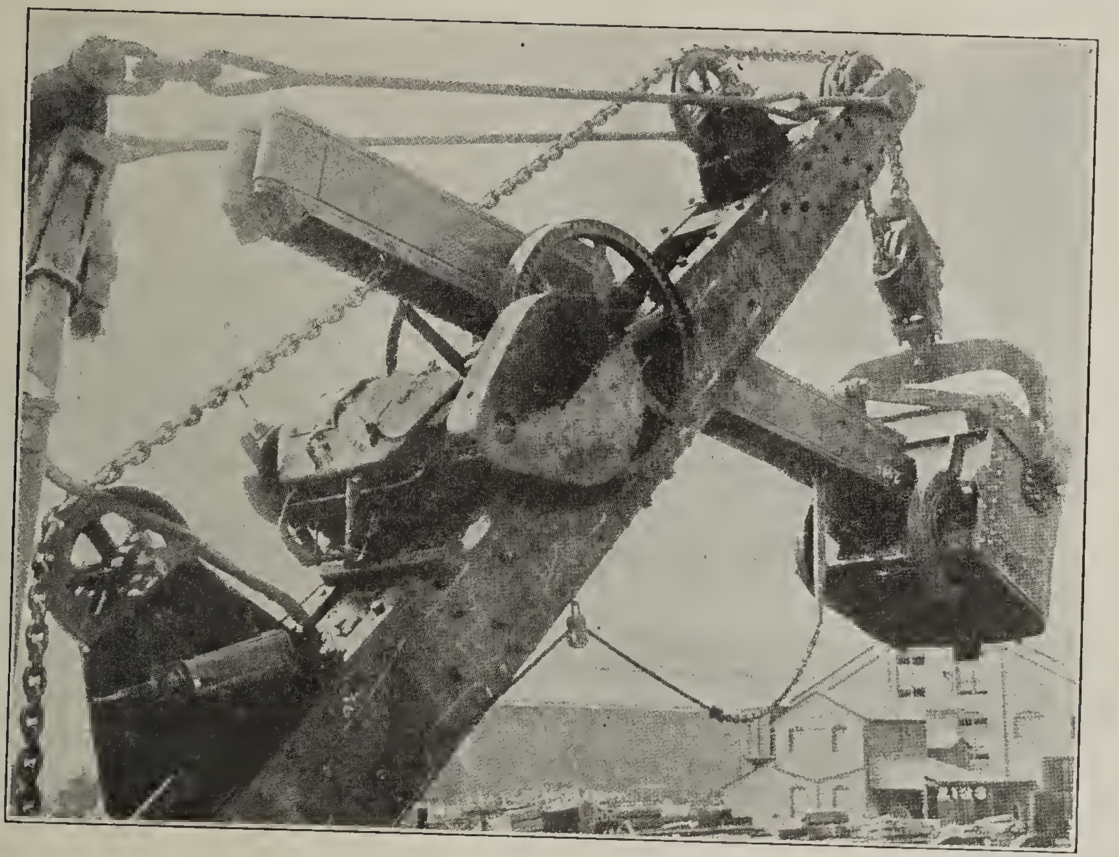

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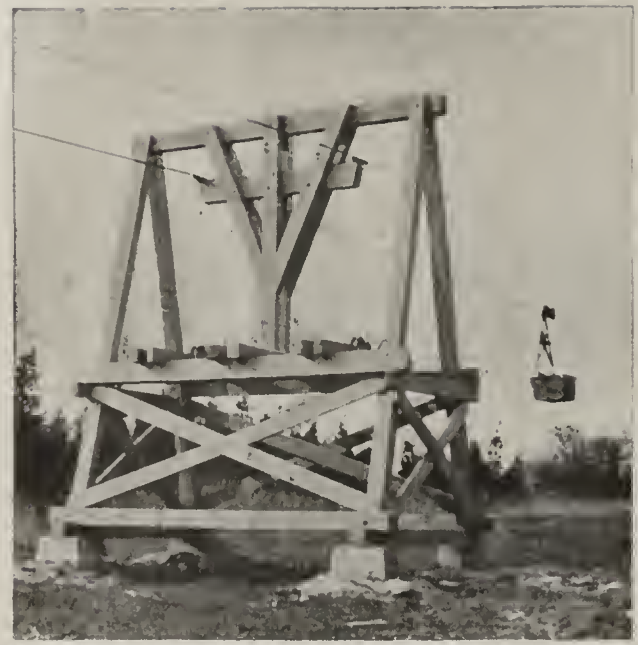

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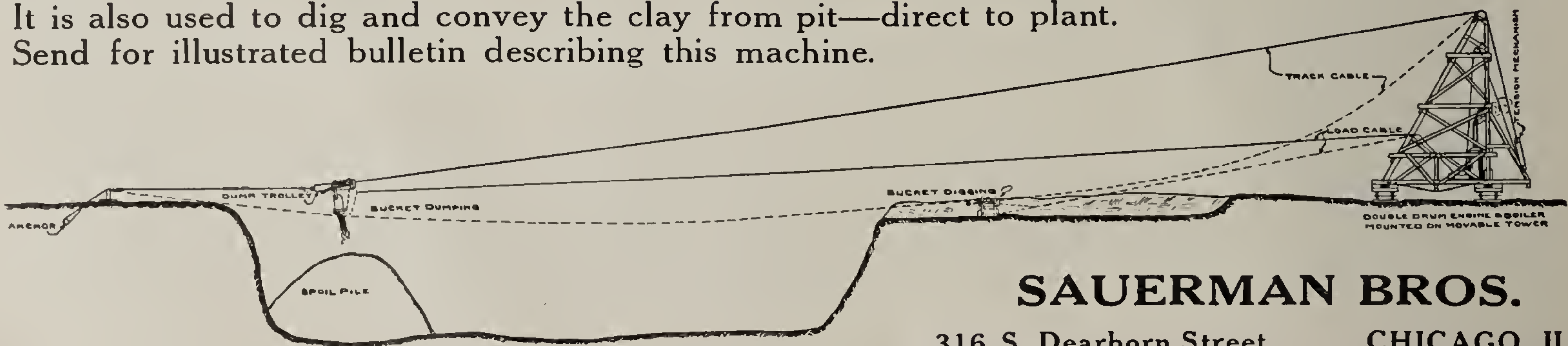

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BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

* * *

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The Editor's Corner

An Open Letter to President Mayer

CASPER P. MAYER, Pres. National Brick Manufacturers' Ass'n., Bridgeville, Penna.

Dear Sir: The announcement of the time and place of the 1916 convention has just reached us. We congratulate the N. B. M. A. upon its choice of Cleveland and upon the date, which is, we understand, coincident with that of the Complete Building Show to be held in the same city.

Experience is a positive teacher. In Chicago during the two conventions that were held in conjunction with the Clay Shows, it was found difficult, in many cases, to induce that prompt, full and enthusiastic attendance of membership to the various sessions of the convention, that we all know is so necessary to the successful conduct of convention business.

The answer is simple—when it came to a choice of attending the convention sessions as against attendance at the Clay Show, many chose the latter.

It was a case, so to speak, of rival attractions. Those who were compelled to stand by their guns or who had specific duties to perform, were at their various positions in the convention meetings, waiting for long periods in many instances, until a sufficiently large "audience" could be scared up for the leading speaker of the day.

When theatrical managers find themselves competing with some strong rival attraction, they raise the quality of their entertainment.

The Quality of the Entertainment

There are two kinds of conventions, and each reflects the thought of the officers and executive committees who have them in charge.

The first of these is the convention that has the social feature as its primary requisite. Here the program is made up very much in the way of a Chautauqua and the subjects are, in many cases, of minor importance when compared to the names of the men who are to be the speakers. This class of convention enables a more or less representative body of men, engaged for the most part in the same industry, to come together and know each other. That is its main accomplishment.

The second or other kind of convention is that which is called for the advancement of the industry that it represents, through the discussion of problems affecting that industry, the interchange of ideas (this in the broadest sense) the appointment of committees to attend to specific duties and the appropriation of funds to these committees so that the work which is done may be men's work and be something in the way of actual accomplishment.

In nearly every large line of industry, the new convention thought is taking hold. These conventions are being stripped of their social features and are becoming gatherings of business men for business purposes. The "entertainment" of the delegates is in every case something of minor importance. The men who attend the conventions are "delegates" in the real sense of the word—they are sent from their respective concerns because they are equipped to give and to receive. The note book does a great business but the bar receipts are small.

The New Convention Thought

The new convention thought is the finding of abuses, problems, advances and set-backs that have come to the industry during the previous year, and the preparation of a discussion that will have for its object the correction of the abuses, the solution of the problems, the strengthening of the advances and the checking of the set-backs. In this way will the industry progress.

One way of finding is in the sending of a well prepared circular letter, not only to the members of the association, but to every man who has money invested in the industry.

This circular letter should ask that man what difficulties in manufacture and sale he has encountered, and which he believes could be surmounted if made the subject of a general discussion. The responses to this circular letter will give the executive committee a wide variety and a generous number of subjects.

If all of these subjects—or at least all that strike the executive committee as being subjects of general interest—are tabulated, and again sent out in ballot form, the men who own clayworking plants will have an opportunity of selecting a dozen or more as being of the greatest importance.

From the replies to these two circulars a large number of hitherto comparatively unknown men will be found to show an interest in the betterment of the industry and from the tone of their replies, the executive committee can readily pick out men who can lead in the discussions.

The length of the sessions and the number of subjects discussed at each session are things that only can be determined by the executive committee, but it can be determined in advance and a rule can be enforced which will limit all speeches made in discussion (outside of the original paper) to five minutes. This is good practice and has so proved itself in many successful conventions.

The Left Over Questions

A large number of questions and problems and complaints will doubtless be received by the committee, many of which will not have been given a sufficient number of votes to enable them to be regularly scheduled for discussion, but these miscellaneous questions might well be made a matter of record and they could all be made very important by having them printed upon cards which would be distributed at the convention, with the understanding that if discussion on any one of the main questions were to be completed before the end of the time allotted to it, questions that appeared upon the cards would be taken at random and brought up for immediate discussion.

The distribution of cards with these miscellaneous questions printed upon them would make every man in the convention familiar with them and would result in someone's being willing to speak to the subject despite the fact that the subject was brought up without notice.

The following of this or a similar plan will have, first of all, the merit of newness, so far as clayworkers are concerned. It will also have the merit of having been tried in other conventions and with tremendous success.

It will keep the delegates to the convention on their toes—they will not wish to miss any of the sessions lest some subject in which they are interested should be brought up for discussion. They will understand that no "orator" of doubtful forensic ability will bore them into lightsome slumber or cut into their lunch hour.

A different kind of delegate will attend the convention if it is known that the convention is to be constructive rather than social. Many a man who is not interested in the exact time when banquet tickets will be put upon sale, is vitally interested in the subject of better freight rates, better manufacturing facilities, better labor conditions, better selling prices and better profits.

"Eventually—Why Not Now?"

"Brick and Clay Record" has no wish to criticize the N. B. M. A. nor the manner in which its past conventions have been conducted. It has no official connection with that organization other than individual membership. It speaks, however, with the authority that comes to it from its thousands of readers and it knows that no authority is without responsibility.

It accepts the responsibility and suggests that the 1916 convention be marked by less parliamentary ruling and more discussion; that the subjects be considered as of supreme importance—much more than the identity of those who discuss them.

It suggests that the social features be given much less prominence and the constructive features more.

The industry needs a great central organization that will make it progress forward in place of backward.

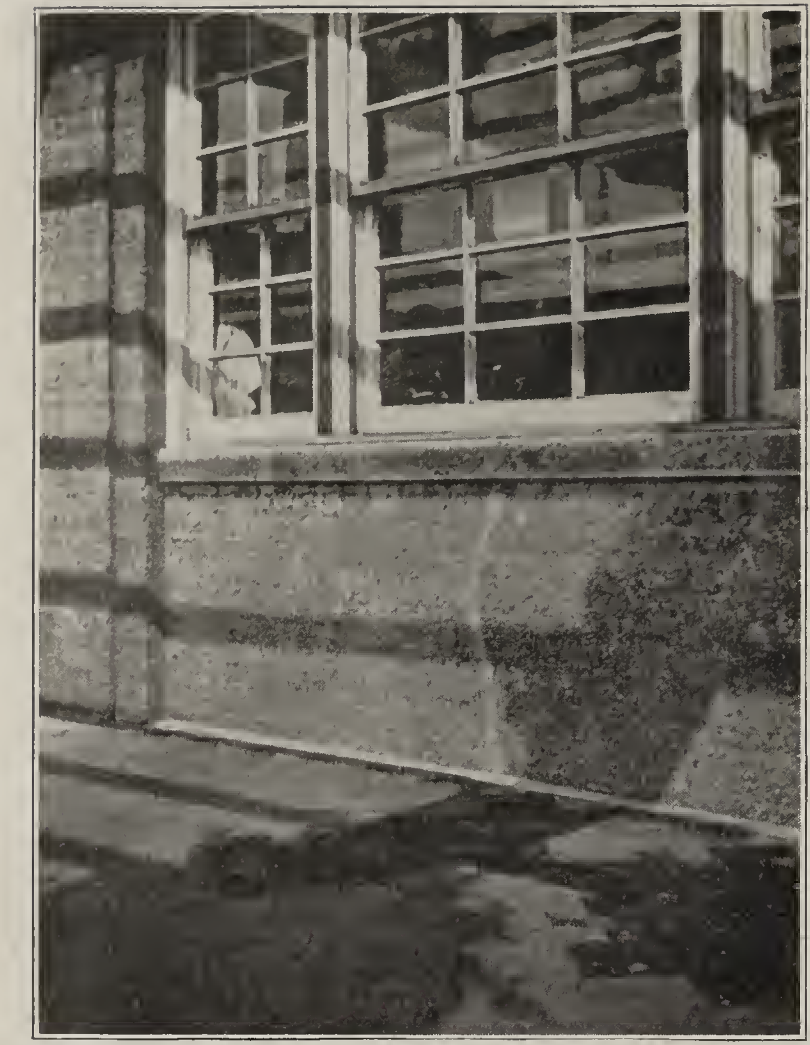
This the N. B. M. A. is in a fair way of doing and can do under your able leadership.

Paraphrasing, for the time being, a very successful advertising slogan—the N. B. M. A. will, eventually—but why not now?

Brick—"Best

Chicago's Small Parks Offer Exceptional Opportunity for Proving Brick's Insistent Claim to Beauty and Economy

EDITOR'S NOTE: It is not the policy of this magazine to search the highways and byways for so-called "cement failures." No attempt is made, in this article, to prove that monolithic concrete is any less stable than brick and mortar. There is, however, every indication



"Monolithic Concrete Has Gone Through an Interesting Process of Expansion and Contraction"

SOMETHING LIKE TEN YEARS AGO, certain men having to do with Chicago's park system, decided that the southwest side of the "I Will" city needed recreation centers. As a consequence, two parts were set aside for this purpose, of practically the same acreage and divided by a distance of about one mile.

Each of these parks contains about sixty acres, of which twenty-three are artificial lakes. Field houses—which are really neighborhood center buildings—gymnasiums for men and women, branches of Chicago's Public Library and other buildings occupy considerable space.

Playgrounds, provided with gymnasium apparatus and in which the small children are kept apart from those of riper years (and, incidentally, the boys from the girls) are fitted with a multitude of appliances which, while taking the aspect of playthings, are actually for the purpose of building up the muscles and tissues of Chicago's coming citizens.

Wading pools for the youngsters do much to relieve the heat waves that come in every once in a while from the prairies to the west. These neighborhood centers are located in congested districts and are about five miles, as the crow flies, from the shores of Lake Michigan.

This distance makes the lake, and its public bathing beaches, beyond the easy reach of the people who live in this part of Chicago. As a consequence, the wading pools do a large, if not a lucrative business, all through the heated term.

In addition to these wading pools, large swimming pools are maintained, with dressing rooms under city supervision and city care, where no fee is charged and no restrictions exacted, save that the bathing suits must be within the bounds of propriety and that the bathers observe a suitable decorum.

Swimming contests for boys and men, and, on alternate days, for girls and women, keep up the interest that brings "customers" to the swimming instructors, all of whom are on the city payroll, the lessons being given free.

In the outdoor gymnasia matrons and instructors maintain regular classes, also without charge, and "field days" are held from time to time, where the youngsters who have "trained" for weeks, receive the applause of their friends and neighbors, as they win points for various groups in which they hold membership.

Tennis and basket-ball courts, foot-ball gridirons and base-ball diamonds and maintained in good order by city-paid ground keepers, and the entire plant is one that is exceptionally well equipped for the purpose of turning out sturdy, well built men and women, from a raw material that comes, for the most part, from the tenements.

All of these things are interesting to the man who believes in an equitable division of tax-raised moneys, to the end that the children who are born in the gray of poverty may have at least a semblance of the healthgiving out-of-door pursuits that come as a legacy to the children who are born to the purple of wealth.

To the man whose position makes it possible to dream of doing similar things for the little ones of his own city, there is a host of suggestions—some of which begin with "do" and others with "don't." One of the latter is, perhaps, the moral of this story.

The buildings that were erected in these two parks were built within a year of each other. In size, in style of architecture, in interior finish, they are practically alike. The difference is in the material that was used in their construction.

In Sherman Park, the buildings are of monolithic concrete,

"Playgrounds Provided with Gymnasium Apparatus and in Which the Small Children Are Kept Away from Those of Riper Years"

by Time's Test"

Monolithic Concrete and Brick Buildings of Same Style, Size and Age Give Unbiased Observer Splendid Chance for Comparison

of injudicious use. In the first place, the concrete construction was more expensive, and, in the second, it has failed to produce as good an effect.. Instances of this kind are legitimate selling arguments, since they give brick an opportunity of proving its strongest claims.

finished with a pebbled stucco. They cost $163,000. During the season when the park is most used, and after the vines that have been trained over the buildings have taken on their summer garments, the deadly dullness of this stucco is, to a great extent, concealed.

In winter, however, when the bare branches of the trees throw shadows across the dark gray surfaces to which the now naked vines still cling, the effect is one of desolation.

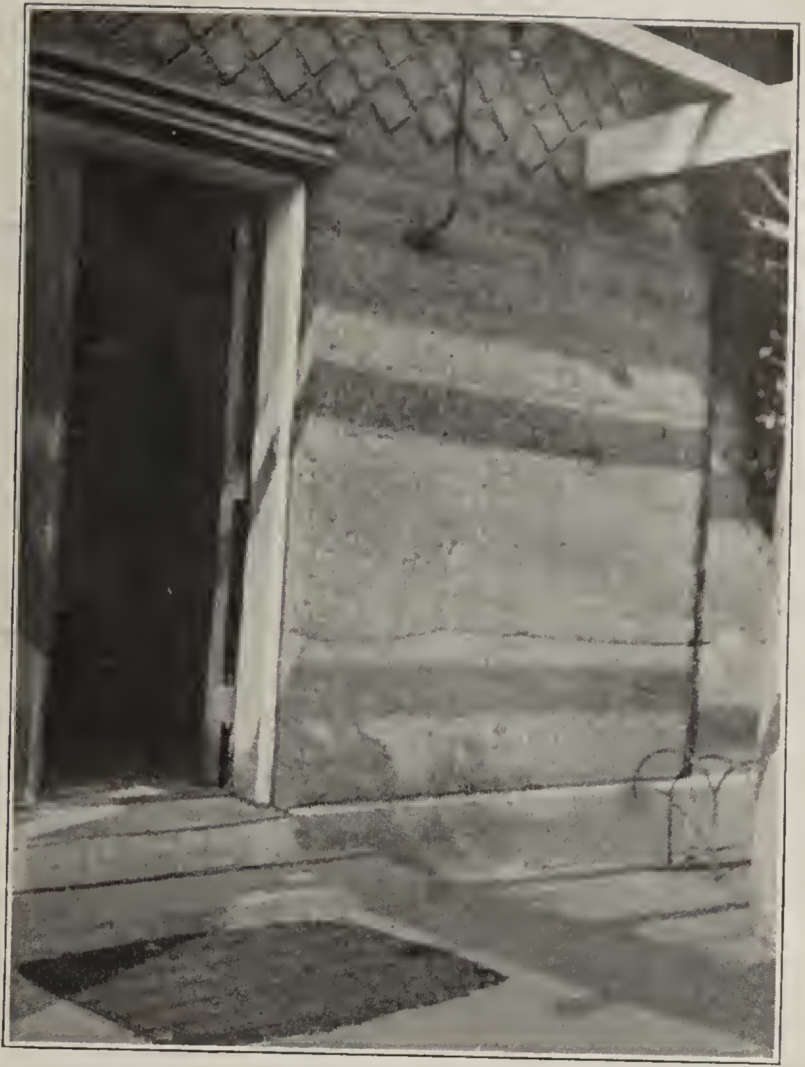
Even in summer, however, the vines and shrubbery do not conceal the fact that the monolithic concrete in these buildings has gone through an interesting process of expansion and contraction, and that the contraction has left wounds and scars. The wounds are in the shape of cracks—cracks that will be left open to the weather until they grow large enough to be patched. The scars are cracks that have been patched, and, as usual, with cement that was of a different shade from that originally used.

A beautifully designed pergola is defaced by the cracks that are easily seen in three out of the ten columns that support the beams.

THE BRICK WITH SMILING FACES

In marked contrast to the deadly dullness and eventual deterioration of the monolithic concrete buildings in Sherman Park, is the brick that faces the field houses in Ogden Park. These, it must be remembered, were erected at practically the same time as those in Sherman Park. They cost, however, a trifle less than $132,000—which is something like twenty per cent less than the monolithic concrete buildings.

In them, brick's claim to "beauty and economy" is fully justified. The brick that is used for facing is of shale, the smooth surface being sand finished. It is a side-cut brick, and the edges are far from even. In point of fact, it is the kind of a brick that is sold, as a rule, for from five to six dollars per thousand less than face-brick of finer finish.



"Cracks That Will Be Left Open to the Weather Until They Grow Large Enough to Be Patched"

"Wading Pools for the Youngsters Do Much to Relieve the Heat Waves That Come in Every Once In a While From the Prairies"

But it has a wonderfully warm shading—a tinge of brown and purple mingling with a soft, rich red. Kiln marks and flashed spots add to the liveliness of the mass, and wide, rough joints of a neutral gray give the brickwork a distinct individuality.

At no point is a crack visible. It is no exaggeration to say that the brickwork looks as well today as it did when the key was first turned in the door and the last workman left a rather good city job.

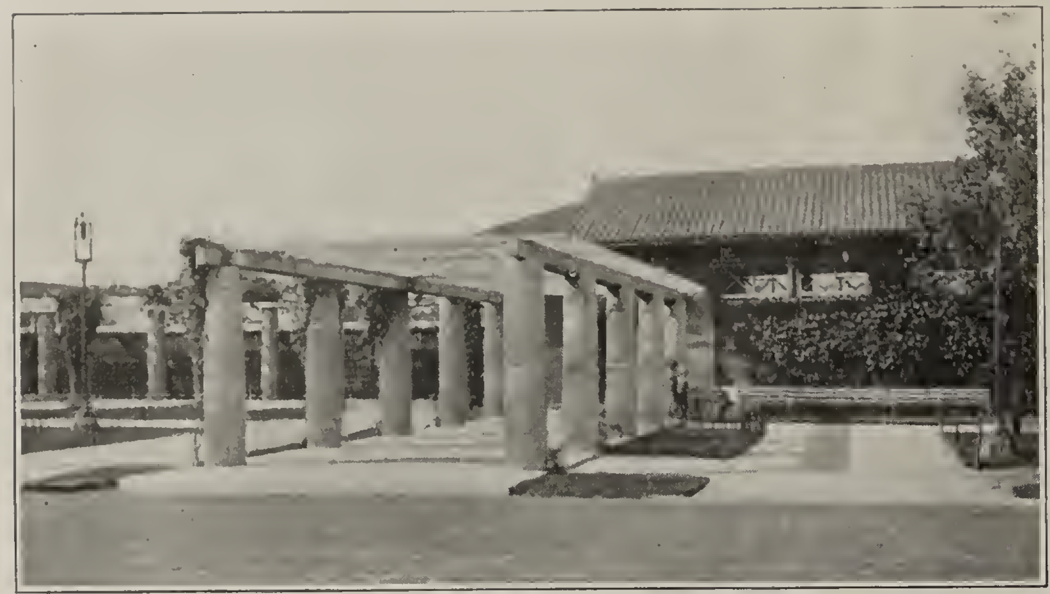
Here, as in Sherman Park, shrubbery is allowed to play a great part in bringing out the beauty of these walls. It serves to enhance, rather than hide, the walls it covers—perhaps eight months in the year.

The smoke and grime of Chicago's "atmosphere" has left its imprint upon the clay tile roof of each of these buildings, and its erstwhile brilliant color is missing. In the case of the concrete buildings it is badly missed, because here it would have helped the clinging vines in their work of giving color to the otherwise colorless architecture.

In Ogden Park, however, the brick buildings do not seem to need the aid of the brilliant colored tile and it is a matter of comment that, while the tile have grown dark and dingy, the brick has remained remarkably clean.

It was said of W. B. Ogden, for whom Ogden Park was named, that he "represented the true American." The statement is credited to Guizot. He was the first mayor of Chicago, holding office in 1837, when the big city was a village of perhaps four thousand.

So it is well that the buildings which ornament the park that is named for him should be faced with an Illinois product and that it typifies many of the characteristics that we like to believe represent American citizenship. It is



"A Beautifully Designed Pergola is Defaced by the Cracks That Are Easily Seen In Three of the Ten Columns"

warm, generous, clean, sturdy, serving mankind honestly and well.

It is a strong, if silent argument, for brick as a structural material. It proves the claims for beauty, utility and economy that form the basis of all good brick reasoning, and, best of all, it proves these claims by a comparison with a rival material—a comparison that is unique in being of the same location, the same age—the same everything, except cost and effect.

It has been said that no good salesman will sell his wares by elimination—that is, by pointing out the faults that he finds, or claims to find, in competing materials. No one, however, can find reason to criticize the salesman who finds, and uses, a convincing argument in the excellent performance of the material he is selling. Here is a case of a material that cost less than something which had been offered in competition, and which gave a better account of itself when put to the acid test of time.

"It is No Exaggeration to Say That This Brickwork Looks as Well as it Did When the Key Was First Turned in the Door"

It may be claimed that the points raised in this article are unfair to concrete, but it must be remembered that the impressions gained were at midsummer, when the concrete buildings were at their best. This was purposely done, lest a claim be made that park buildings were little used in winter, and that the dreariness of aspect that comes with the cold weather was of little moment. It is a fact, however, that the two parks about which this story is written, are as popular when the artificial lakes are ice-bound, as when the lawns are velvet-green.

Cost and Depreciation

So much has been said of the economy of building with brick, that some figures on the subject may be valuable.

In a recent report of the National Fire Protection Association, some interesting facts and figures are given regarding the comparative initial cost and comparative depreciation of brick and frame buildings. These figures will bear careful study, as they come from a source of undoubted authority, and have been written into records that will be referred to for many years to come. The report may be obtained by writing to the secretary of the National Fire Protection Association, at 87 Milk Street, Boston, Mass. For the benefit, however, of those who wish the information without delay, the report is here given in part and reads:

"Reliable estimates, based on actual bids (Boston, 1914) show that the additional cost for fireproof walls over wooden walls is as follows: 12-inch brick walls, 13%; 10-inch brick hollow walls, 9.1%; stucco on hollow block, 6.3%. A comparison of two similar three-flat houses recently erected in Dorchester showed a cost of $6,000 for wood and $6,379 for brick—an excess for brick of 6%.

"The Building Department of Chicago in 1912, after a very thorough canvass of the matter, reported that for ordinary buildings the excess cost of brick was 10% and for very cheap buildings, 15%.

"In 1912, in New Haven, Hartford, Stamford and Chelsea the average cost of brick houses for 1,729 families was $2,127; and of wooden houses for 2,021 families $2,138.

"A recent canvass of twenty-two insurance companies, insurance agents, builders and architects showed in their opinion an average depreciation of 1½% per year for brick and 2½% for wood. Other estimates were 1 to 1½% for brick and 5% for wood. On the cheaper class of wooden building 5% is probably the more correct figure."

"The Brick Buildings Do Not Seem to Need the Brilliant Tile"

Cleveland Wins Brick Convention

First-Vice-President Deckman's Home City Selected for Next National Brick Manufacturers' Convention in February, 1916

THE National Brick Manufacturers' Association gave added importance to the Complete Building Show, to be held in Cleveland February 16 to 26, 1916, by voting, on Saturday, August 28, to hold its annual convention in Cleveland at the time of the show. The date selected by the Executive Committee of the N. B. M. A. is the week beginning Monday, February 21, at the Hotel Statler.

This executive meeting, also held at Hotel Statler, ended a six month's contest among the cities for this big gathering of brickmakers. Atlantic City, St. Louis, Dayton and Cleveland extended invitations to the organization at its last annual meeting in Detroit. In the final contest all except Atlantic City and Cleveland were eliminated.

Had it not been for the Complete Building Show there is little doubt, officials of the organization say, that Atlantic City, N. J., would have received the convention. Those interested in the Cleveland exposition made a thorough campaign in the interest of their city and tried to convince the brickmakers that a real opportunity to put their material before a vast building public was offered at the Complete Building Show. The aims of the show being educational and the competition being open to all materials, it gave an opportunity for brick to put its best foot forward in a dress parade that will be viewed by thousands of people who are about to build. The coming of a large number of clayworkers to the convention gives an added prestige to the material they are making and is an added reason why the manufacturers should make a display in that show that will eclipse all former demonstrations of burned clay as a building material.

Other conventions that have been attracted to Cleveland on dates corresponding to the show dates include the National Builders' Supply Association, the Ohio Builders' Supply Association and Ohio Retail Hardware Association.

There were present at the executive meeting of the N. B. M. A. in Cleveland, C. P. Mayer, of Bridgeville, Pa., president; T. A. Randall, of Indianapolis, secretary; George H. Clippert, of Detroit; Fritz Salmen, of New Orleans, H. C. Bloomfield, of Atlantic City and Will P. Blair, Charles J. Deckman and W. H. Hunt, of Cleveland. Messrs. Blair and Deckman, Cleveland members of the Executive Committee, took an active part in bringing the convention to the "Sixth City."

Both of these men spoke for Cleveland at the executive meeting and the claims of Cleveland were seconded by R. C. Mitchell, general manager of the Farr Brick Company and secretary of the Complete Building Show Company, and by Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination, which organization launched the show movement. Others who spoke were Floyd E. Waite, of the S. A. F. E. and T. P. Cagwin, secretary of the Convention Board of the Cleveland Chamber of Commerce.

Professor Orton, secretary of the American Ceramic Society, represented his organization at the meeting and H. C. Bloomfield, holding the proxy of his father, Charles Bloomfield, presented Atlantic City's claims to the convention.

The visitors were given a luncheon at the Statler by Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, and the subject was fully discussed by all present before the committee went into the executive session.

Association Gossip

The Cincinnati (Ohio) Brick Club held an outing the afternoon of Saturday, August 28, which was an unqualified success. All of the members of the club, which is made up of the leading face-brick dealers in Cincinnati, formed themselves into a "committee of one"—that is, a committee of one purpose—the purpose being to see that the three hundred or more guests had a royal good time; the report is that the work of the committee was eminently efficient. Many well known architects, builders and contractors were among the guests, and as the steamer "Majestic" which was chartered for the occasion, was comfortably large, there was but little crowding, except at the few choice (who said moist?) spots on the saloon deck. A handsome badge was given each guest, together with an adequate noise-making apparatus for those whose throats were not equal to the occasion. The net result is that the Cincinnati Brick Club has had an opportunity of showing that it appreciates the favor of the architects and contractors of Cincinnati and that the architects and contractors appreciate the fact that the Cincinnati Brick Club is a very lively up-to-the-minute organization of business men.

An effort is being made in Kansas City, Mo., to organize a local association of brick dealers and contractors which may have representation in a new organization of contractors and supply men known as the Builders' Association of Kansas City. The latter association has been formed to succeed the Master Builders' Exchange, with broader objects, and a more comprehensive membership. The charter of the Exchange has been surrendered, and the new association has already received its charter, taking over the property and rooms of the Exchange. This association is intended to include general contractors, and all of the special contracting lines, as well as all supply lines and interests allied with the building trade. Already ten associations have allied themselves. The new organization will include Jackson and Clay counties, Missouri, and Wyandotte and Johnson counties in Kansas. Local agents of manufacturers will have associate memberships.

The Pittsburgh Face Brick Association holds its meetings, as a rule, in the evening. The August meeting was held on the 11th, and a paper on "knocking" was read, which caused a great deal of favorable comment. It is proposed to reproduce this paper in "Brick and Clay Record" in a near subsequent issue.

The Pan-American Road Congress to be held under the joint auspices of the American Road Builders' Association and the American Highway Association will be opened Sept. 13 at Oakland, Cal., and continue in session for five days. The principal object of the Pan-American Road Congress will be to bring together into one great convention those from all parts of the United States, Canada and Central and South America who are interested in the subject of highway and street improvement. A special day has been set apart (Sept. 15th) at the Panama-Pacific International Exposition, and this will be known as the "Pan-American Road Congress Day." A carefully prepared program has been issued. It shows that the "New Convention Thought" has governed the selection of the subjects that are to be discussed and the manner of discussion. In each instance, one man is appointed to read the paper and then a certain time allotted to the discussion of the subject matter. It is expected in this method to accomplish a great deal of work and do away with any chance of tiresome oratory, which, as a rule, gets nowhere.

The Ohio Face Brick Manufacturers' Association will hold its next regular meeting during the last week in the present month. The meeting will take place in Columbus, Ohio, and it is expected that reports will be made on several points that have been the subject of committee work.

The Brick Manufacturers' Association of Columbus, Ohio, at a recent meeting, adopted resolutions condemning the custom of certain local contractors who used "seconds" and "culls" for facing the sides and rear of residential property. The slogan "Face Brick All Around" is being amended to "First Quality Face Brick All Around."

Nebraska Clayworkers Organize

Realizing the advantages and need of co-operative effort in the marketing of clay products and the manufacturing helps that are possible through association work, the brick and tile manufacturers of Nebraska have organized themselves into the Nebraska Brick and Tile Association with C. M. Linn, of the Humboldt Brick Works, as president, and Frank I. Ringer, commissioner of the Nebraska Manufacturers' Association, as secretary.

A mere handful of clayworkers recently met in Lincoln and out of this meeting was born the new association. New members have been added at each meeting since then, and the organization now looks into the future with full assurance of success.

That this is a live body of men is evidenced by the fact that space has been taken in the Manufacturers' Building, at the State Fair to be held in Lincoln early this fall. This space has a thirty-two foot front and is ten feet deep. A brick booth will be erected which will attempt the "last word" in brick and tile construction. A fire-place and a mantel of brick will also be shown.

The purpose of the exhibit is to bring more forcibly to the attention of the thousands of people attending the fair, the wide economical range of uses to which burned clay may be put.

Besides the president and secretary above mentioned and the vice-president, F. G. Burnham of the York Brick and Tile Company, York, Neb., the executive committee of the association consists of the following: W. H. Ferguson, Yankee Hill Brick Company, Lincoln; C. Klose of C. Klose and Company, Lincoln; A. H. Farrens, Western Brick and Supply Company, Hastings, and J. W. Turner of the Seward Brick Works, Seward.

The regular meetings of the association have been set for the second Monday in January, April, July and October of each year.

Chicago Passes New York in 1914 Building

Although there was a general decrease in building operations throughout the United States in 1914, ten of the larger cities which showed decreases in 1913 showed increases in 1914, according to a report just compiled by the Geological Survey.

The most important feature of the building industry in 1914 was the large decrease in building operations in New York City, by which it lost its rank as the leading city in cost of building operations, having been passed by Chicago. The cost of building operations in Chicago was $83,261,710, against $74,030,241 in New York. New York's decrease in comparison with 1913 amounted to $33,074,466. The greatest increase shown in any city was in San Francisco—$7,140,299—the second largest increase being in Brooklyn, which was $7,109,81.

In forty-eight selected cities the total cost of building operations in 1914 was $619,752,354, as compared with $673,220,625 in 1913.

Government officials made efforts to obtain detailed information from the leading one hundred and fifty-seven cities in population. Replies were received from one hundred and forty-seven of these, one hundred and thirteen of which furnished sufficient details to permit the publication of figures by classes of buildings. Building operations in the one hundred and forty-seven cities cost $785,525,746 in 1914. In one hundred and thirteen of these cities the new buildings of all kinds cost $461,681,108; new wooden buildings, $1,65,226,250, and new fire-resisting buildings $296,454,858, of which new brick buildings were erected at a cost of $181,957,682.

Government Wants a Mold Maker

An announcement has just been made by the United States Civil Service Commission at Washington, D. C., that an examination will be held on September 22 for a mold maker in ceramics to be located at Pittsburgh, Pa., at the branch of the Bureau of Standards. The circular states that he "will assist in original investigations in the treatment of clay and clay products." The examination will be divided into two parts, the first of which will be questions on ceramics and pottery making, and second, practical questions in mold making. The applicant must have reached his twenty-first year and must be a citizen of the United States.

Standardizing Clay Products

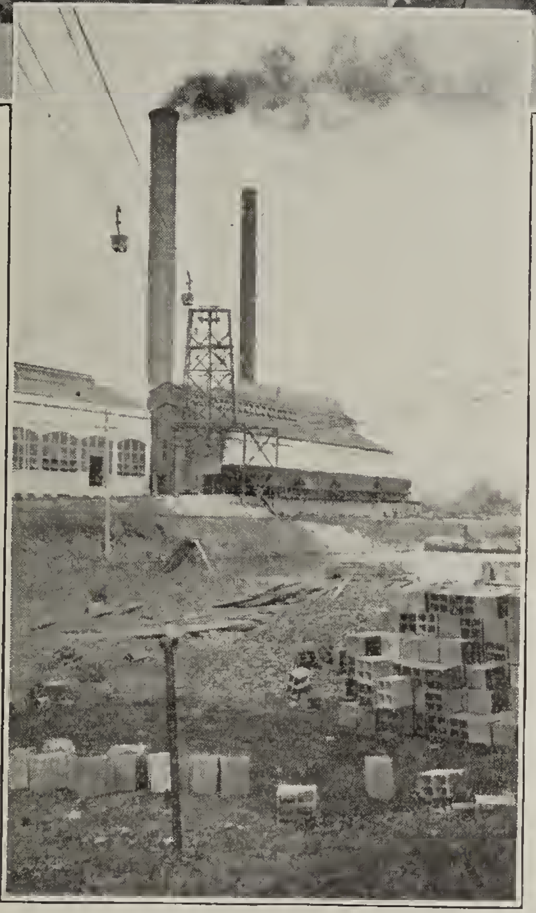
The New Jersey State Board of Conservation and Development has authorized a series of clay studies and tests with a view to standardizing clay products in that state. This work will be carried on in connection with Rutgers College at New Brunswick, its continuance and extent to be determined in a large measure by the support given it by New Jersey clay products manufacturers. It will be remembered that at the last annual meeting of the New Jersey Clayworkers' Association in December, 1914, at New Brunswick, a resolution was adopted asking the New Jersey State Legislature to set aside a certain sum each year for research work in clay products. That this resolution has had some effect may be gained from the fact that the state has taken steps to get this work under way.

The Ceramic Society Meeting

FOLLOWING its usual practice, the American Ceramic Society made its "summer meeting" a series of sight-seeing jaunts, unusual luncheons and well arranged social functions.

A great deal of credit is due the committee which had the meeting in charge and at every turn the members and guests were met with little courtesies and accommodations that reflected the careful preparation and painstaking thought that had been given the matter by those who had it in their care.

The date of the meeting was changed from August 15 to August 25, so that a demonstration could be made of the American Dressler tunnel kiln, the first to be built in this country, and recently completed at the plant of the Universal Sanitary Manufacturing Company, at New Castle, Pa.



The Cement Plant Where Hollow Clay Tile Were Being Used in Building the Addition to the Office

The first order of the day, therefore, was the trip to New Castle Junction, where the sanitary ware plant is located. The ceramists were met by C. J. Kirk, president of the Universal Manufacturing Company, who turned them over to Mr. Dressler. The kiln was explained by the latter, who used the kiln itself, and the cars that are to carry the ware, instead of the drawings which are here presented and which must serve the purpose. For the reason described, allusion is made to letters and figures instead of to the actual kiln parts, and the "talk" given by Mr. Dressler is not verbatim.

In substance, however, it was as follows:

As its name implies, the Dressler tunnel oven consists of a tunnel, the length of which depends upon the temperature to which the clay wares are fired, and the time that is given to the operation. The temperature will vary from gold heat, 800°C., to the highest porcelain heat.

A little more than half way down from the mouth of the oven there is a gas producer (A Fig. 1), from which the gas is conducted by a duct (B) into the oven, and there burnt. A train of trucks (C) is caused to move continuously through the oven in the direction indicated by arrows, at a rate dependent upon the production required and the amount of gas at our disposal. The usual rate is one truck per hour. The gas does not burn directly among the ware, but is introduced into two long tube-like chambers (D.D.^{1}) which lie alongside the track and extend from the producer to almost the mouth end (O) of the oven. There the burnt gases are drawn off by means of a fan (E), thus insuring a regular draught under all weather conditions. The air needed for burning the gas is drawn from the tail end (P) of the oven through the fired ware, from which it recovers a portion of the heat acquired in burning, an important source of economy.

The cars containing the ware are usually propelled mechanically by an electric motor of very small power. The trucks are on roller bearings, and the friction is reduced to a minimum. (F) is the propelling apparatus.

The inlet of gas and the inlet of air, and the outlet of the hot flue gases, are all controlled with the greatest nicety by the dampers (G. G^1. G^2.). This perfect control is another of the reasons responsible for the achievement of such remarkable economies. There is no waste of fuel.

In the cooling zone, two pipes (H. H^1.) placed alongside the track of the trucks, and which lead from the tail end of the oven to flues (I.I^1.) situated near the heating zone,

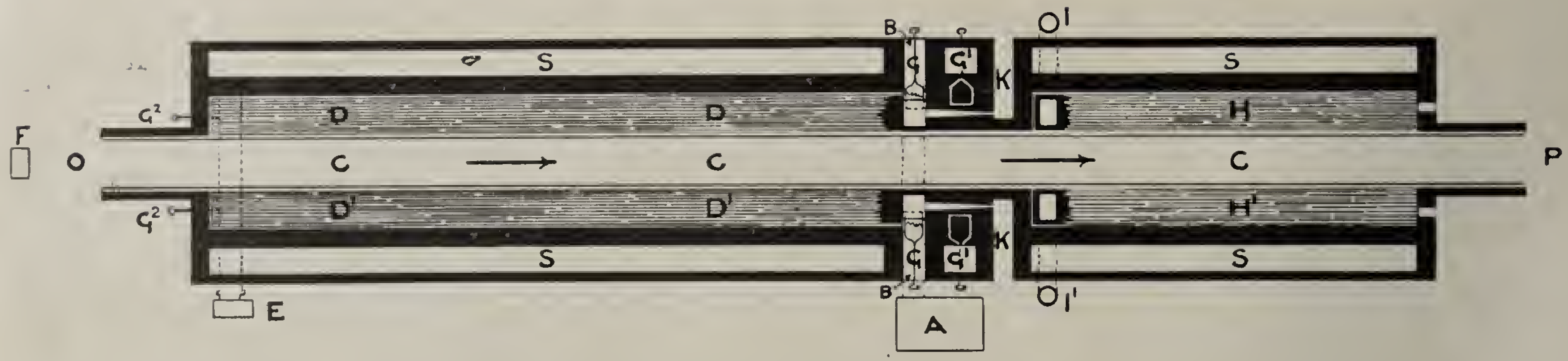


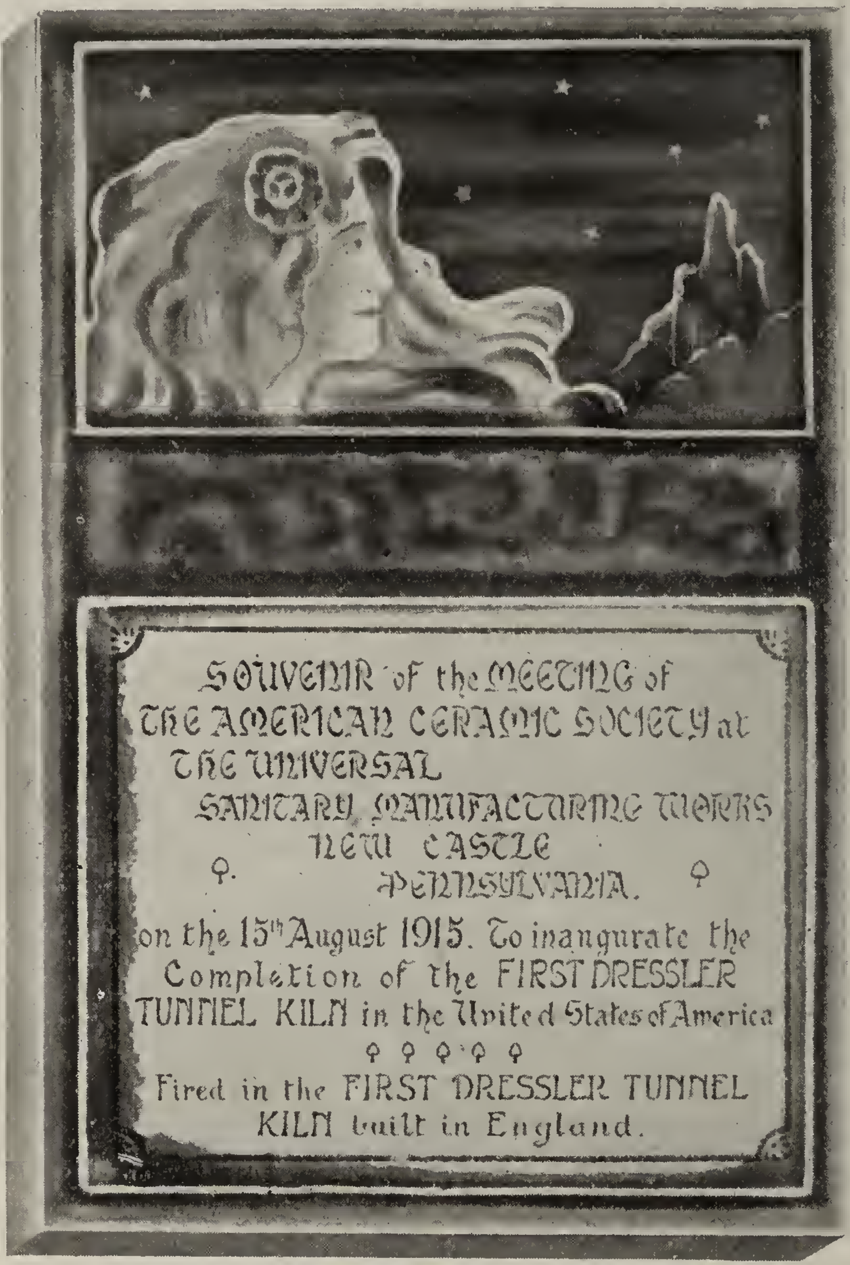
Figure 1—Floor Plan of the Dressler Tunnel Kiln

draw off the superfluous heat from the ware, after it has given off what is needed to the air which burns the gas. This spare heat is considerable, and it is at the manufacturers' disposal for drying purposes. There is an inspection chamber at (K) to enable the fireman to see the gases burning.

Two cross sections show the oven in the hottest zone (Fig. 2) and in the cooling zone (Fig. 3).

It will be seen in Fig. 2 that the combustion chambers (D. D.¹) are on a level with the ware (R), and are surrounded by an air passage (L). There are also air passages (M. N.) among and under the ware placed on the trucks. The gases burning in the chamber (D. D.¹) heat the air which surrounds the ware, and thus causes a circulation in the direction shown by the arrows. The firing of the goods is effected entirely by hot air circulation.

In Fig. 3 there is also a circulation of air, but this time it is in the opposite direction, because the cooling pipes (H. H.¹) are for the purpose of abstracting heat, not of imparting it. It will be noticed that the escape of heat from the oven walls, which accounts for so much waste in ordinary practice, is guarded against by the provision of a thick blanket of insulating material (S).



SOUVENIR of the MEETING of
THE AMERICAN CERAMIC SOCIETY at
THE UNIVERSAL
SANITARY MANUFACTURING WORKS
NEW CASTLE
PENNSYLVANIA.
on the 15th August 1915. To inangurate the
Completion of the FIRST DRESSLER
TUNNEL KILN in the United States of America
Fired in the FIRST DRESSLER TUNNEL
KILN built in England.

The Tile Souvenir. It is Colored Brown, Yellow, Flesh and Three Shades of Green and Highly Glazed

The ware is placed by the setters on the trucks on shelves, which commence about two feet from the ground, rising to five feet and are then pushed into the oven. This work is light, clean and easy, and all done in the cool, so that untrained labor can be employed to do it, thus effecting a considerable wage economy. At the other end of the oven it is, of course, an equally easy operation to unload the fired trucks.

A luncheon was served in one of the great ware rooms of the sanitary plant and as each guest was ready to take his departure, a souvenir was given him. This consisted of a highly colored and glazed tile, an illustration of which accompanies this account. It will be noted that the date shown upon the tile is ten days in advance of the actual date of the visit of the ceramic society to the sanitary company's plant. This advance date was due to the fact that the completion of the kiln was delayed and, as a consequence, as has been said, the date of the

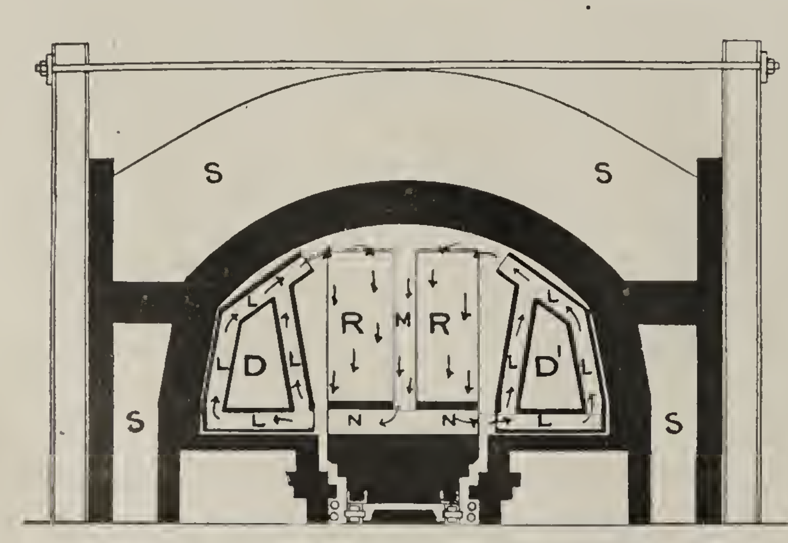


Fig. 2—The Zone of Intense Heat

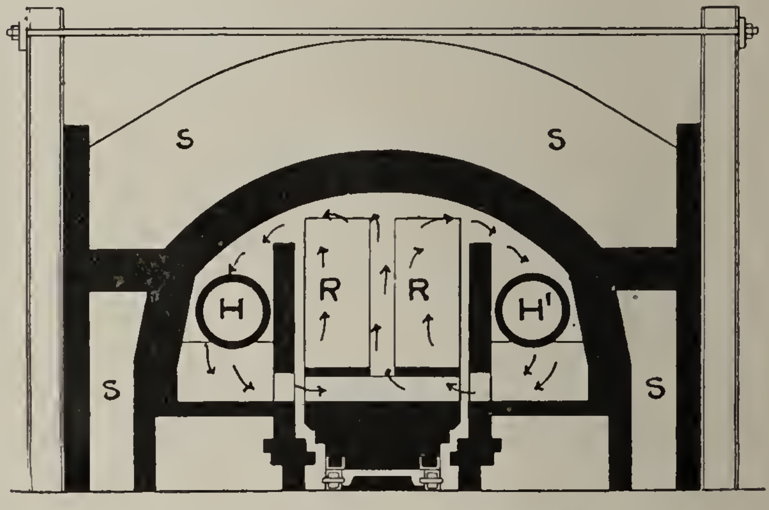


Figure 3—The Cooling Zone

ceramic meeting was postponed.

Leaving the Universal plant, the party returned to New Castle to visit the plant of the Shenango China Company where, among other interesting things, was found a complete dinner service in course of preparation. This service was one ordered by the United States Government for its battle ships and is marked with the insignia of the rank of the officers for whose mess it is designed.

The American Ceramic Society's Summer Outing En Route to the Bessemer Limestone Company's Shale Bank and Quarry

A noteworthy feature of the Shenango China Company's plant is the presence of a number of bulletins, calling upon its employes for suggestions and offering a prize of five dollars to the employe that shall make the best suggestion between pays.

Quite a number of the ceramists elected to visit the plant of the Lehigh Portland Cement Company instead of going to the Shenango China Company, but the larger number figured that since they were to see a cement plant on the following day, it would be well to take in the pottery.

It is an interesting fact that the Shenango China Company's building directly adjoins the buildings occupied by New Castle's only brewery, and it is said that in view of the rising tide of prohibition, the day is not far distant when the Shenango China Company will absorb the New Castle Brewery.

This will be the second instance of this thing's happening in America, and someone has remarked that if Omar Khayam were to know of it he would certainly turn over in his grave.

Dinner was served the night of Aug. 25 at the New Castle Country Club, and the trip from the club back to the city was made in automobiles furnished by the local committee.

Thursday morning the party left by specially chartered train over the private branch railroad of the Bessemer Limestone Company. Here was seen one of the largest paving brick plants in the country, where a continuous kiln is used in burning a part of the product and rectangular down-draft kilns, the balance. It is a matter of note that the coal consumption of these kilns shows a very great saving in favor of the continuous type; while the rectangular down-draft kilns consume 1,800 pounds of coal to each thousand paving brick (five tons of clay) the continuous kilns consume between 1,100 and 1,200 pounds of coal to the same quantity of brick.

Luncheon was served at the Belco Hotel which, as is easily seen, is the "company boarding house" of the Bessemer Limestone Company.

After luncheon the party left for Crescentdale to view the plant of the Crescent Portland Cement Company. This plant is interesting in the fact that it obtains its coal, limestone and clay on its own property.

When the ceramists arrived at the cement company's office, they were given a hearty welcome and escorted to the robing room, where linen dusters and caps were provided, as well as copious draughts of spring water, lead pencils and

Dwight Humphrey and Ross Purdy

Three Intrepid Ceramists Who Did Not Believe in Signs

Conrad Dressler and Edward Orton, Jr.

The New Castle Brewery and the Shenango China Company. If the Present Prohibition Wave Continues to Grow, the Pottery Will Absorb the Brewery

a generous amount of literature showing uses for cement.

The party was divided up into groups of six—each with a guide—and conducted through the various departments of the plant. The first thing that was shown them was the addition that was being built to the Administration Building, and here those of the visitors who were interested in the manufacture of the rougher clay products were delighted to see that a large amount of burned clay tile was being used by this cement company for partition work in its own building. Interrogation brought forth the information that the cement company was trying to do away with the use of this kind of material, but that up to this time it had been unable to produce anything that would serve the purpose as well.

It is well said that the Crescent Portland Cement Company's plant is modern in every respect. The steel shell rotary kilns in which coal dust is burned under air pressure and the clay crushing device which was like a gigantic mortar and pestle, caused much comment and a number of the delegates noticed here other devices which would be, in their minds, good things to adopt in clayworking plants.

Among these was a cylindrical screen through which ran a screw conveyor. It is thought that this principle would be a splendid one to use in connection with brickmaking.

Dinner was served Thursday evening at the Beaver Falls Country Club and here the ceremony of disbanding the ceramic society and its organization of the Beaver section of the American Ceramic Society was enacted.

On Friday, Aug. 27, the delegates were taken to the works of the Armstrong Cork Company, where they witnessed the process of manufacturing a notable type of brick that is used for heat insulation purposes. This brick is composed of clay, infusorial earth and ground cork, the latter serving not only to create the desired porosity in the brick, but by its combustion, furnishing the entire heat in the kiln.

Following this visit the party began to disband, the question of convenient trains making it necessary for various delegates to leave before the entire itinerary was completed. Those who remained visited the Brighton Chemical Company's plant at New Brighton, Pa., where borax and boric acid is being produced, and also the plants of the Beaver Valley Pot Company at Rochester, Pa., where glass po flattening plates and glassmaker's refractories are made, and also the H. C. Frey Glass Company's plant, which is devoted to the manufacture of blown table ware and bar glassware of high quality.

MEMBERS AND GUESTS WHO ATTENDED

R. T. Stull, Urbana, Ill.; C. B. Stowe, Cleveland, Ohio; G. T. Stowe, Cleveland, Ohio; C. B. Thwing, Philadelphia, Pa.; H. D. Lillibridge, Zanesville, Ohio; Wm. McCoy, Zanesville, Ohio; Ross C. Purdy, Worcester, Mass.; J. W. Ward, Latrobe, Pa.; G. H. Brown, Pittsburgh, Pa.; W. J. J. Bowman, Trenton, N. J.; Chas. S. Kinnison, Pittsburgh, Pa.; J. Parker B. Fiske, New York, N. Y.; A. V. Bleinger, Pittsburgh, Pa.; Thos. J. Fiddler, New Brighton, Pa.; C. McAllister, Trenton, N. J.; Louis Ingram, Beaver Falls, Pa.; John W. Richardson, Beaver Falls, Pa.; Donald W. Ross, Pittsburgh, Pa.; P. A. Smith, New Brighton, Pa.; J. W. McClelland, New Brighton, Pa.; Roy A. Horning, Beaver Falls, Pa.; E. T. Montgomery, Alfred, N. Y.; L. L. Bentley, Beaver Falls, Pa., A. J. Podomore, Camden, N. J.; C. P. Mayer, Bridgeville, Pa.; Leonard Strub, Beaver Falls, Pa.; Francis T. Owens, Ridgway, Pa.; W. C Iffrath, Pittsburgh, Pa.; W. S. Howat, Pittsburgh, Pa.; V. Mulholland, Darlington, Pa.; H. E. Maddock, Trenton, N. J.; C. S. Maddock, Jr., Trenton, N. J.; M. E. Gregory, Corning, N. Y.; K. Okura, Nagoya, Japan; S. Momoki, Nagoya, Japan; R. Tsuboi, Nagoya, Japan; Emerson P. Poste, Elyria, Ohio; A. S. Walden, Cleveland, Ohio; I. M. Justice, Dayton, Ohio; George A. Polen, Canal Dover, Ohio; R. D. Landrum, Cleveland, Ohio; Jos. K. Moore, Canal Dover, Ohio; George Hoaf, Solvay, N. Y.; Richard R. Hice, Beaver Falls, Pa.; J. M. Morton, Zanesville, Ohio; Owen Healey, Elizabeth, N. J.; Edward G. Kerr, Beaver Falls, Pa.; G. L. Clapper, Pittsburgh, Pa.; H. Forester, Trenton, N. J.; Fred Brand, Sandusky, Ohio; F. W. Donahoe, Chicago, Ill.; Arthur S. Watts, Columbus, Ohio; Harold W. Bloomfield, Metuchen, N. J.; Herbert W. Moore, Tottenville, N. Y.; August Staudt, Perth Amboy, N. J.; C. H. Kerr, Tarentum, Pa.; W. D. Richardson, Columbus, Ohio; G. T. Brandt, Minerva, Ohio; M. Shaw, Minerva, Ohio; J. M. Steward, Minerva, Ohio; A. Schmaeltinberger, Minerva, Ohio; J. A. Grinder, Minerva, Ohio; Samuel B. Larkins, Salineville, Ohio; S. Kondo, Columbus, Ohio; D. E. Humphrey, Cleveland, Ohio; P. J. Madden, Chicago, Ill.; W. J. Brace, Chicago, Ill.; Edward Orton, Walter S. Mayer, Beaver Falls, Pa.; I. E. Sproat, Colum- Jr., Columbus, Ohio; Herford Hope, Beaver Falls, Pa.; bus, Ohio; Fred A. Morgan, Chicago, Ill.; James M. Smith, New Castle, Pa.; A. T. Malm, Worcester, Mass.; F. R. Kanengeiser, Bessemer, Pa.; R. C. Wallis, Bessemer, Pa.; F. W. Walker, Jr., Beaver Falls, Pa.

Some Ceremonial Bricklaying

The laying of the first brick in the new Hamilton County Courthouse at Cincinnati on August 12, was attended by elaborate ceremonies. General Superintendent Frank Sweeney, in charge of the work for the Charles McCaul Company, placed the brick in position at the northwest corner of the building, and was followed by various public officials and others connected with the work, with the second, third, fourth, fifth and sixth bricks, respectively, of the 6,500,000 which will be laid before the building is completed.

Brick City Hall at Tillamook

The Pacific Face Brick Company, Portland, Ore., has secured the contract to furnish all of the face-brick to be used in the construction of the new Tillamook city hall. About 30,000 light cream brick with a white brick for the trim, will be used.

Bad Weather at Rapid City

The Rex-Shale Brick Company, Rapid City, S. D., after being handicapped by extremely wet weather, is now operating steadily with a large number of good orders on hand.

How to Prevent Efflorescence in Finished Brickwork

Showing that Walls May be Insured Against Disfiguring Whitewash by Methods Similiar to Those Used to Prevent Efflorescence in the Brick

By Arthur E. Williams, B. Sc.

Instructor in Ceramics, University of Illinois

THE PROBLEM OF EFFLORESCENCE is one of constant worry and interest to the brick manufacturer, and has been the cause of many discussions and written articles. As a result, the common causes of efflorescence before and after burning the clay are well known on most yards.

Where the product demands it, barium compounds are used to prevent the appearance of dryer scum. The use of barium, however, does not insure one against the appearance of efflorescence as in the finished wall.

The production of soluble sulphates during burning has been shown to be possible by experiment and often explains the presence of a considerable amount of efflorescence. The sources of the sulphur may be either from pyrite in the clay or in the coal. As practically all coals contain sulphur, and the coals of some districts contain excessive amounts, we can not be entirely free from sulphur gases in burning, and must depend upon other means to prevent the formation of these salts.

The factors favoring the formation of soluble sulphates during burning, assuming the presence of sulphur gases and the lime or magnesium in the clay, are,—1, oxidizing fires; 2, a coarse-ground and porous unburned body; and—3, cooling the brick in an atmosphere full of sulphur gases.

To promote the reaction of lime or magnesium oxides with the sulphur in the kiln gases, strong oxidizing conditions are necessary. If one is burning brick to the colors requiring oxidizing conditions in the kilns, his product is more liable to effloresce than if the colors are such as require a smoky atmosphere in the kiln. On the other hand, excessive flashing has occasionally destroyed even the dryer scum. It is therefore better to have a slightly smoky atmosphere in the kiln for as great a proportion of the time during the latter stages of the burn as the color desired will allow.

To produce soluble salts in brick during burning it is necessary for the gases to penetrate into them through the pores. The denser and less porous the unburned brick can be made, the less liable is the burned product to effloresce. A clay which slakes rapidly in tempering will work up denser than one which does not. Finer screening and longer tempering will assist the slaking process and reduce the possibilities of efflorescence.

The third possibility mentioned, which does not occur often, but has operated when coals very high in sulphur are used, is made evident by the appearance of a snow-white efflorescence, apparently forming in a few hours. This may show before the brick are taken from the kiln, and often shows on the piles after the brick have been out of the kilns a few days. This seems to occur on the black and dark burned brick more than on the lighter colored brick and is in most cases very superficial, not appearing again after one or two good washings.

This type of efflorescence, appearing on the surface of very hard non-porous brick, is evidently formed on the surface only, and from the same cause that the soluble salts are formed in the pores of the brick. However, there is this difference—these brick are in all cases burned in a reducing atmosphere and the formation of the soluble salts could not take place during the burning. Also, the fact that the salts are not burned on to the brick or permanently fused with the clay, as dryer scum is after burning, shows that the formation of this salt must take place during the cooling, when a large amount of sulphur gas from the clinkers mixed with plenty of fresh air is passing into the kiln.

Factors which will assist in avoiding the formation of these salts are, therefore,—1, to make as dense a body as possible; 2, to burn with a smoky atmosphere, which of course, can only be done in accordance with the final color desired; 3, to pick sulphur rock from the coal and clay as much as possible, and—4, cool in an atmosphere free from sulphur.

The cooling in an atmosphere full of sulphur gases not only produces salts which will effloresce on the surface of the hard burned brick but will produce these salts in the pores of the soft brick. It is often customary to avoid clinkering kilns a few hours before they finish. This should be considered an important time to clinker in order to avoid cooling the kiln with the fire-boxes full of clinkers containing burning sulphur. It is also a common thing to fill a fire-box full of clinkers when a kiln is cooling, a process which assists very greatly in the production of soluble salts.

Finally, the harder the brick are burned the less porous will they be, and even if there are soluble salts formed in the brick the moisture will not be able to reach them and carry them to the surface. The ideal brick then, from the standpoint of liability of efflorescence is a well vitrified non-porous brick burned to a dark shade, i. e., brown or black, for this type of brick has been burned under reducing conditions, which is a preventative to the formation of soluble salts and is also non-porous.

It is a generally recognized fact that a considerable amount of wall white is not the fault of the brick, but comes from external sources. In fact, considering the way face-brick are being treated and burned hard at the present time, the larger proportion of wall white may be attributed to soluble salts in the earth or the mortar. This efflorescence need not show at the mortar joints but may show on the face of the brick.

The sources of soluble salts other than the brick themselves are,—1, the lime; 2, cement; 3, sand; 4, iron ore mortar color, especially that made by roasting pyrite; 5, salt used to prevent freezing; 6, soil about the foot of buildings; 7, manure, and, in large cities its presence has been explained as coming from the soot depositing on the wall.

Normally, to keep the wall as dry as possible is one remedy always to be taken. Foundations should always be water-proofed on top and preferably on the top and sides, below the ground level. Tar or asphaltum coverings will serve; in addition great care should be taken that the cornice and roofing do not leak.

After preventing large quantities of water entering the brick and traveling through the pores in the above manner, one more step should be taken to prevent its possible appearance from the mortar. *The mortar should be treated with barium compounds just as the clay is treated in order to make insoluble these soluble sulphates.* This will not prevent common salt (used in freezing weather) from appearing, but will make insoluble most of the other salts present.

The quantity to use may be determined by the following simple test. Mix the dry ingredients for the mortar in the proportions to be used, including mortar color. Place a known weight, about 2 ounces, in each of five fruit jars or other vessels and mix varying amounts of barium carbonate with each as follows,—0%, ½%, 1%, 1½%, and 2% by weight. Then add water to the mix until it is a thin liquid, allow to stand over night, then draw off into a test tube a small amount of the clear water from each jar and add a few drops of barium chloride solution. Those samples showing a milky white precipitate have not had enough barium carbonate added. The sample containing the least amount of barium carbonate and showing no milky precipitate is the percentage of barium carbonate to add to the mortar.

One determination made on lime alone, in the University laboratory, showed ½% of barium carbonate would be needed.

A simple method of determining whether the burned brick will effloresce or not is to place a few samples on end in water, about half of the brick being immersed and the other half exposed to the air. Thus, water may travel through the pores of the brick and evaporate on the exposed surface. If they contain soluble salts, the dry end of the brick will show efflorescence in a few days and at least within a week. In this test distilled water should be used. Condensed steam is usually handy at any factory. Tap water may be used but there is a possibility of the efflorescence then being due to the water.

The above test may also be applied to show the quality of soil mortar and tap water as follows: Place two or three brick to be used on end in each of four pans. In one keep distilled water surrounding the bottom ends. In another place the brick about one inch deep in the soil to be tested and keep this wet with distilled water. In the third, place the brick in pans as in the first case and use tap water in place of distilled water. In the fourth, place brick in the mortar to be used as they are placed in the soil. The pans should be kept moist at least three days to one week. If efflorescence shows in the latter three cases and not in the first, or even if it shows very much more in either of the latter three cases than in the case using distilled water, the efflorescence may be attributed to the earth, water, or mortar as the brick may show. Soft, porous brick will show the test best. To illustrate an example of such a test: One manufacturer had the bottoms of a number of his brick piles show a large amount of efflorescence and desired to know the cause. Samples of brick were taken from the top of these piles together with samples of hard brick from other piles, and a box of the soil from about the piles. A hard and a medium burned brick were placed in one bucket with the soil in the bottom and one of each of the brick placed in another bucket with distilled water alone. These were kept in the moist condition for two weeks. Efflorescence began to appear on the medium burned brick set in the wet soil after three days. After two weeks, no efflorescence showed on the hard burned brick, a slight trace on the medium burned brick in the distilled water and a very thick coating of white salts on the medium burned brick set in the wet soil. The manufacturer was advised to pave his piling ground with hard brick or use boards as a foundation. Kiln clinkers used for filling the grounds will fill the soil with soluble sulphates and they are common source of this trouble on brick yards.

In conclusion, efflorescence from the brick alone is now rare and much can be done to prevent it by the contractor. *On the other hand, efflorescence from the mortar is not uncommon and the contractor is not taking any special pains to prevent it.*

I believe it would be well for the brick manufacturer to first make sure his product does not contain soluble salts enough to give trouble by using the above simple test, and then emphasize the fact to the buyers of brick that the contractor can prevent, in an inexpensive manner, this "scarecrow" (efflorescence) from appearing.

A case of brick efflorescing on an otherwise beautiful job of brickwork is often a hard thing for a manufacturer to live down. I believe the manufacturer and salesman should emphasize the necessity of contractors taking the precautions during construction above mentioned.

The architect is another "responsible party" who needs to be shown how, and then given periodical doses of follow-up literature, so that his specifications may contain a proper provision for the prevention of the white-wash that is at once a stain upon the building and upon the brick with which the building is faced.

Are You Using Poster Stamps?

A few years ago the railroad authorities put an end to the practice of certain manufacturers, who nailed large cardboard or paper posters to the sides of freight cars, which were designed to tell the public (or that part of it which walked through railroad yards, or which was held up at grade crossings by freight trains) that the car contained certain materials that were manufactured by the man who paid for printing the poster and for nailing it on the car.

Up to this time Uncle Sam has been more lenient, and has not made any objection to the affixing of brightly colored stamps to mail matter—stamps that do not pay postage, but which do carry a message.

The manufacturers of building brick have used a large quantity of the posterettes or poster stamps that have been supplied them by "Brick and Clay Record." Manufacturers of paving-brick have just begun to use the stamp that is illustrated on page 365.

The poster stamp is a pleasant way of telling a truth. It is co-operative advertising in a splendid way. It costs but a trifle to buy and another trifle to use. Why not try a few thousand—at $1.50 per M.?

The Design and Construction of Down Draft Kilns

Being a Valuable Contribution to Clayworking Literature and a Guide to a Better and More Economical Practice of Burning Clay Wares

By A. F. Greaves-Walker

(Asst. Genl. Mgr. Sun Brick Co., Ltd., Toronto, Ont., Member American Ceramic Society, Member English Ceramic Society, Member Royal Society of Arts, Fellow Utah Academy of Sciences)

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MUCH HAS BEEN WRITTEN on the subject of kilns and much remains to be written, but the author of this paper is sure that a vast majority of clayworkers will agree that helpful information on this subject has been exceedingly scarce. The reason for this has been that very little information dealing with the basic principles of kiln design has been published.

To all appearances the down-draft kiln is a simple affair. In reality it is one of the simplest of all scientific metallurgical furnaces. Yet it is with wonder and not a little awe that one goes about this continent and observes what a difficult and intricate proposition the average clayworker has made of it.

There are good reasons for this condition of affairs. In past years too little attention has been paid to kiln design and construction. As a general rule, when a new kiln was required or a change was made from the old up-draft to the down-draft type, the matter was left entirely to the superintendent, burner or brickmason. These men often had little idea of even the most simple principles underlying the burning of clay wares.

The fact remains therefore, that fully seventy-five per cent of the kilns of this type in use, and probably more, are not economical.

A kiln may be economically deficient in many ways—it may cost originally far more than it should; it may require high upkeep, which means not only repairs, but the loss while out of commission; it may produce a high percentage of defective ware; it may use a far larger amount of fuel than necessary, or require several days longer to burn than it should; it may require rebuilding before it has had a proper span of life. That a kiln—a practically perfect kiln—which eliminates all the above faults, can be designed and constructed at a reasonable cost, goes without saying.

It will be contended that a kiln which will work successfully on one clay and one class of ware will not work on others, and that it has been necessary to evolve special kilns for all of the different conditions. *This may be true in one case in one hundred, but not more.*

The fact must be apparent to all clayworkers who have given the matter thought and study that certain unbreakable rules govern the design and construction of all kilns, and that if these rules are not followed, a poor kiln will be the result. What clayworker with a number of differently designed kilns on his plant has not noticed that certain of these kilns give better results than others? Has it every struck you that these "good" kilns may be very nearly correct in principle, while the "poor" kilns are not?

TOO LONG A BURNING PERIOD

From experiments and investigations made, the author has come to the conclusion that the great majority of clayworkers are taking too much time in burning their ware. Most of the time is lost in the watersmoking and oxidizing periods. In many cases this is not so much due to faults in kiln design or construction as to poor burning methods. Often—through fear—a burner unnecessarily prolongs the burn in the early stages. In such a case, of course, the fault lies with the man and the line of improvement is clear.

The author is quite certain that fully ninety per cent of the shales and clays on this continent can be burned off in six days or less, irrespective of the products produced. This includes the entire burning period from lighting the fires to the finish of the burn. *No exception is made in the cases where ordinary carbonaceous shales are used, in fact where the carbon content of a clay or shale is low, this period should be shortened, in the average case.* The author is quite aware that such a statement will draw forth a vast amount of criticism, for many clayworkers seem to take pride in the fact that they take from ten to twelve days to burn off a kiln, and even though they were to be absolutely assured that their ware would finish in half the time, would not even give it a trial.

As a proof that the above contention is correct, the author would draw attention to the fact that whenever continuous kilns have replaced down-draft kilns, the burning period (the period during which the ware is under heat treatment) has been reduced to six days or less, except in isolated cases. The reactions which take place in a continuous kiln are not one bit different from those in any other type of kiln, and it is therefore reasonable to suppose that what can be done in one type of kiln can be done in any other.

Primarily, of course, in order that ware may be pushed through a kiln safely at a rapid rate, it is necessary that the kiln be of proper design. The conclusions and designs set forth in this article are not based on theory, but actual observation and practice. They were decided upon as being the most nearly correct after observing the design and operation of several thousand kilns, located in many sections of the continent, and burning practically every variety of ware, from all sorts of raw material.

Kilns after this design, both round and rectangular, have

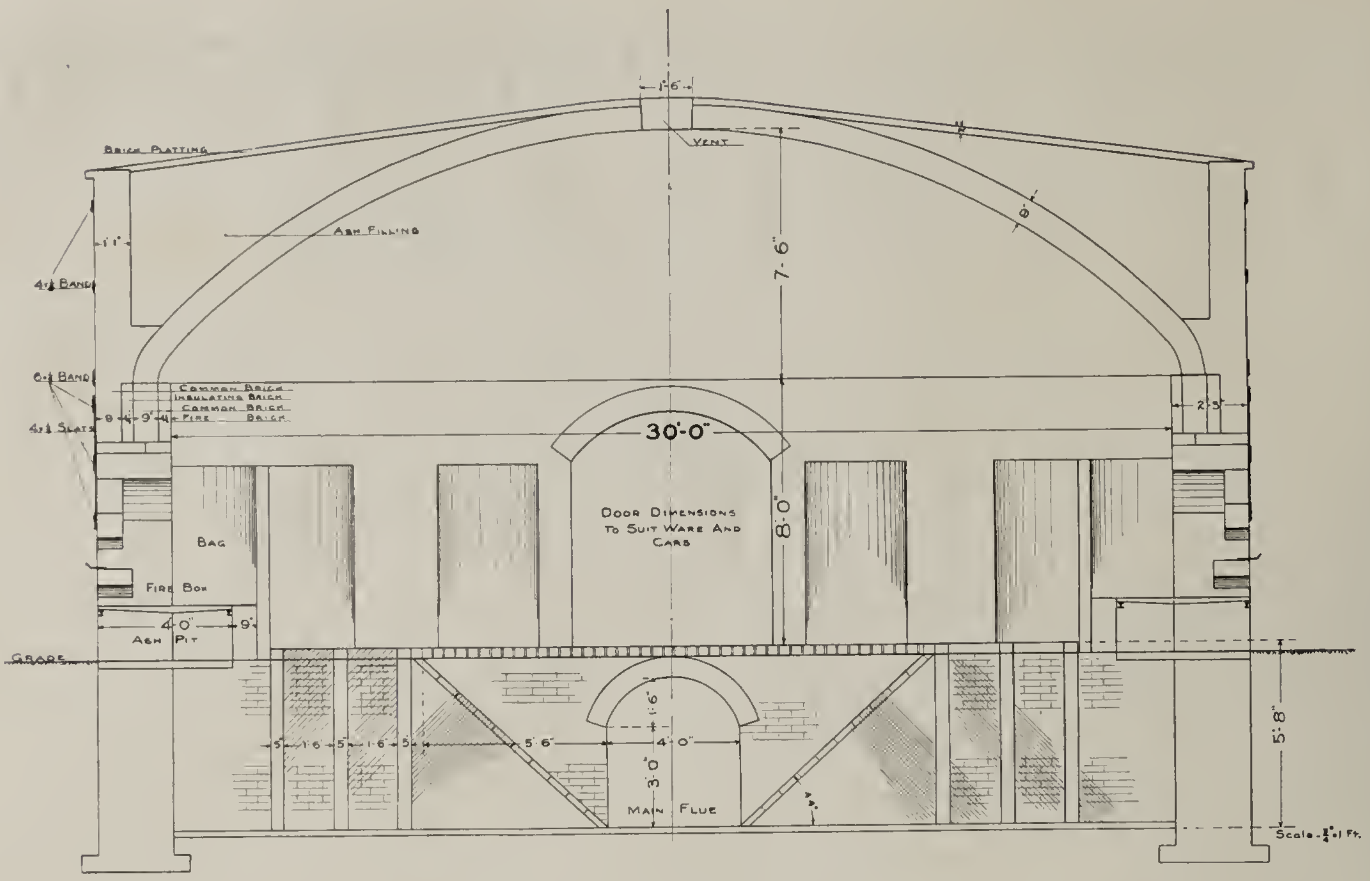


Plate 1—Thirty-foot Round Kiln

maintained an average burning time of six days or less, on shale and fire-clay brick and shale block—not on one yard, but on several, located at widely separated points. The fuel consumption never exceeds 1,000 pounds per 1,000 common brick equivalent and the recovery of first quality ware averages ninety per cent or over.

In the following description the author will attempt to cover the important points on both round and rectangular kilns. It is not necessary to go into the relative merits of the two types, for it is largely a matter of personal choice, but it might be well to say that as regards cost *the rectangular type is slightly cheaper to construct per ton of holding capacity*, particularly when built in large units, while the round is considerably cheaper in upkeep (repairs).

DRAINAGE

Thorough drainage of the bottom is one of the most important points in kiln construction. Much poor ware is due to damp bottoms—perhaps more than to any other one cause, although this point is often overlooked. No matter how good the natural drainage may be, put a network of drain-tile under and around each kiln, being sure the drains have a good fall. On yards where it is impossible to get natural drainage for kiln bottoms, put in a sump and keep it pumped out. The best kiln on earth will not give good results if the bottom is wet. Money spent for drainage will repay you many times over.

FOUNDATIONS

The mistake is often made of putting a kiln on shallow foundations. These should always be carried, at least, to a point slightly below the deepest flue. Very few buildings of any type are subjected to the racking a kiln gets, yet you would not think of building even a small house without carrying the footings at least a few inches below the basement floor level. The author has examined many kilns with the bottom of the footings above the bottom of the flues and the result is always a shaky and tumbledown makeshift. If it is necessary to build the kilns on soft ground, observe the same rules in designing the foundation as would be followed in putting a brick building on the same ground. In making your calculations, do not forget to add the weight of the ware which the kiln will hold, to the weight of the structure itself.

BOTTOMS

In designing a kiln bottom the main points to be considered are; equal distribution of the gases; good draft, especially in the water-smoking period, and ease of cleaning. The first gives good ware over the whole bottom; the second quick burns, and the third saves tearing up the floor and keeps the kiln in commission the maximum amount of time.

Personally, the author is decidedly against the dead or solid bottom type of kiln. *Invariably it produces a higher percentage of defective ware and takes longer to burn.* The case of keeping the flues clean does not enter into the consideration because this can be had in a well designed riddle or checkered bottom.

In a checkered bottom kiln you get good distribution of heat and, by designing deep flues, good draft and easy cleaning.

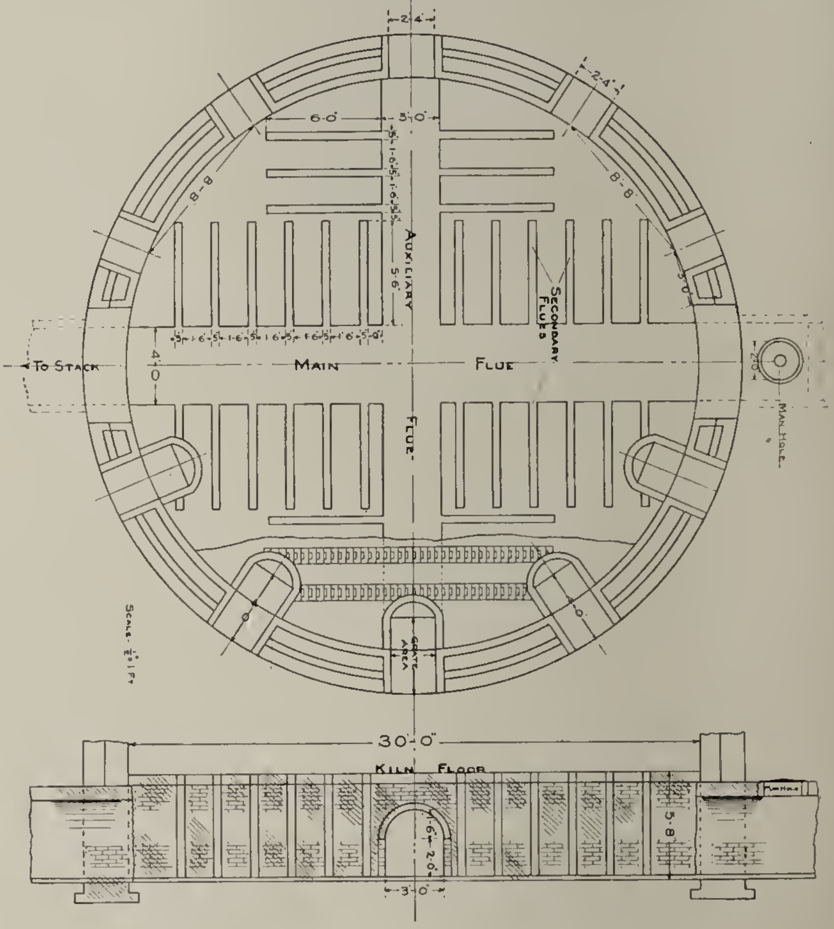


Plate 2—Thirty-foot Round Kiln Bottom

Reference to Plates 1 and 2 will show the method of laying out the bottom of a round kiln. By designing a deep, wide auxiliary flue running at right angles to the main or stack flue, through the centre of the kiln, all of the secondary flues can be given a slope of approximately 45 degrees. Thus the latter will shed any sand, dirt or chips into the large flues, whence they are easily cleaned out through the manhole. A much simpler bottom can be built by omitting the auxiliary flue, and sloping all secondary flues to the main flue, but in this case some of them will not have slope enough to shed and it will be necessary to rake them down at times. So far as the burning results are concerned there is very little difference.

It will be noted that the large flues are wide enough for

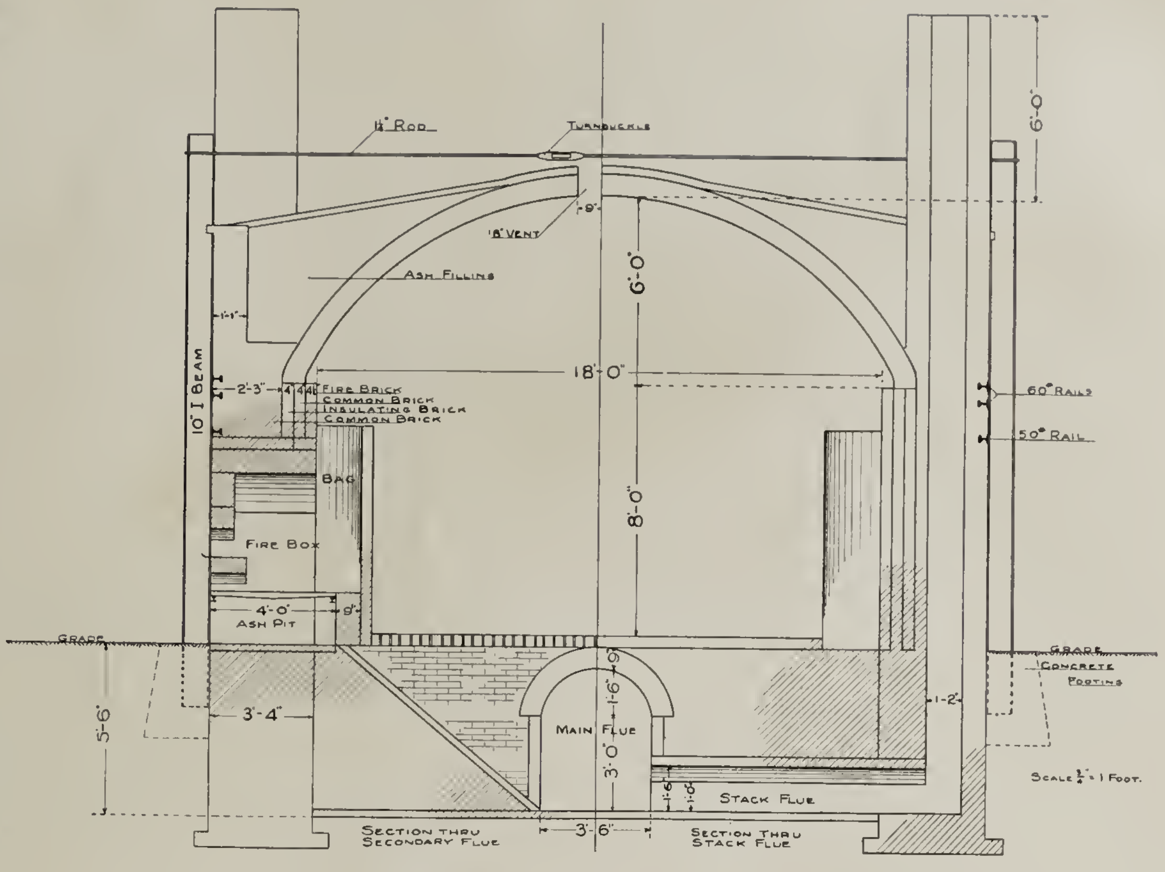


Plate 3—Rectangular Kiln

the passage of a wheelbarrow and have height enough for a man to work in. The depth allows for a heavy accumulation of sand and dirt before it becomes necessary to clean out. Even where sand is used in setting, such a kiln will run for several burns without the draft being affected by choking. Another advantage is that such a kiln can be cleaned out while setting is going on, a decided advantage on a plant which is short of kiln room.

Reference to Plates 3 and 4 shows the method of laying out a rectangular kiln bottom. All that has been said with reference to the round kiln applies to this type.

The author is well aware that, theoretically, deep flues are incorrect, but in this case theory and practice do not check. In actual practice he has found the deep main flue to give a distinct advantage during the watersmoking period, *i. e.,* good draft and no water settle. *In kilns of this design there has never been the slightest sign of a water settle, even where the ware was set continually in a distinctly wet condition.* This is probably due to the fact that the dense, moisture-laden gases of the watersmoking period have a better opportunity of getting clear of the bottom courses than with shallow, small flues.

Referring to the construction of kiln bottoms, the author would like to mention here the very bad practice of partially filling in the kiln excavation with earth, and then building the secondary flue walls or feathers on this filling. *If this is done you will have the trouble of at least partially rebuilding your bottom within six months.*

All filling should be done with hard burned brick or bats. If nothing else is used in the bottom and the masons are prevented from getting too generous with their mud, the original bottom will remain level for years. It is very good practice to allow the paving course to dip slightly toward the centre of the kiln. This will allow the ware to lean away from the fires and in a measure will tend to overcome the "pull" on the outside courses.

STACKS

Nothing detracts from the appearance of a yard more than a number of cracked and shaky looking kiln stacks. Also, a poorly designed stack may cause what otherwise would be an efficient kiln to give poor results.

In round kiln construction a stack is generally built to serve two or four kilns. With rectangular kilns, the single or double stack may be used, but the multiple stack system is the cheapest and most popular.

Single stacks should always be built with a separate inner lining. (Plate 5.) This lining need not be more than four inches thick, and is separated from the outer casing by a three-inch air space. Occasional headers should be shoved out of the inner lining so as to just touch the outer shell. This prevents the closing of the air space. In a stack built in this way the inner lining moves up and down freely with the expansion and contraction and prevents any cracking of the outer shell. When two or more kilns are attached to the same stack, a separate inner stack should be built for each kiln, for when two kiln flues enter the same stack flue, the draft of one is always affected detrimentally by the other. If the inner stacks are not built separately, as is often the case, but are only divided by a single wall, the temperature difference between the two sides will quickly wreck the entire inner stack.

Instead of carrying the inner stack up the total height, it is often carried only a few feet above the point where the flues enter. This practice is only completely successful when the inner lining is carried up at least two-thirds of the total height of the stack. This has been determined by experiments carried on by one of the larger clay products companies during the past decade.

It is now generally conceded by well informed kiln designers that a thirty-foot round kiln or a single stack rectangular kiln of equal ca-

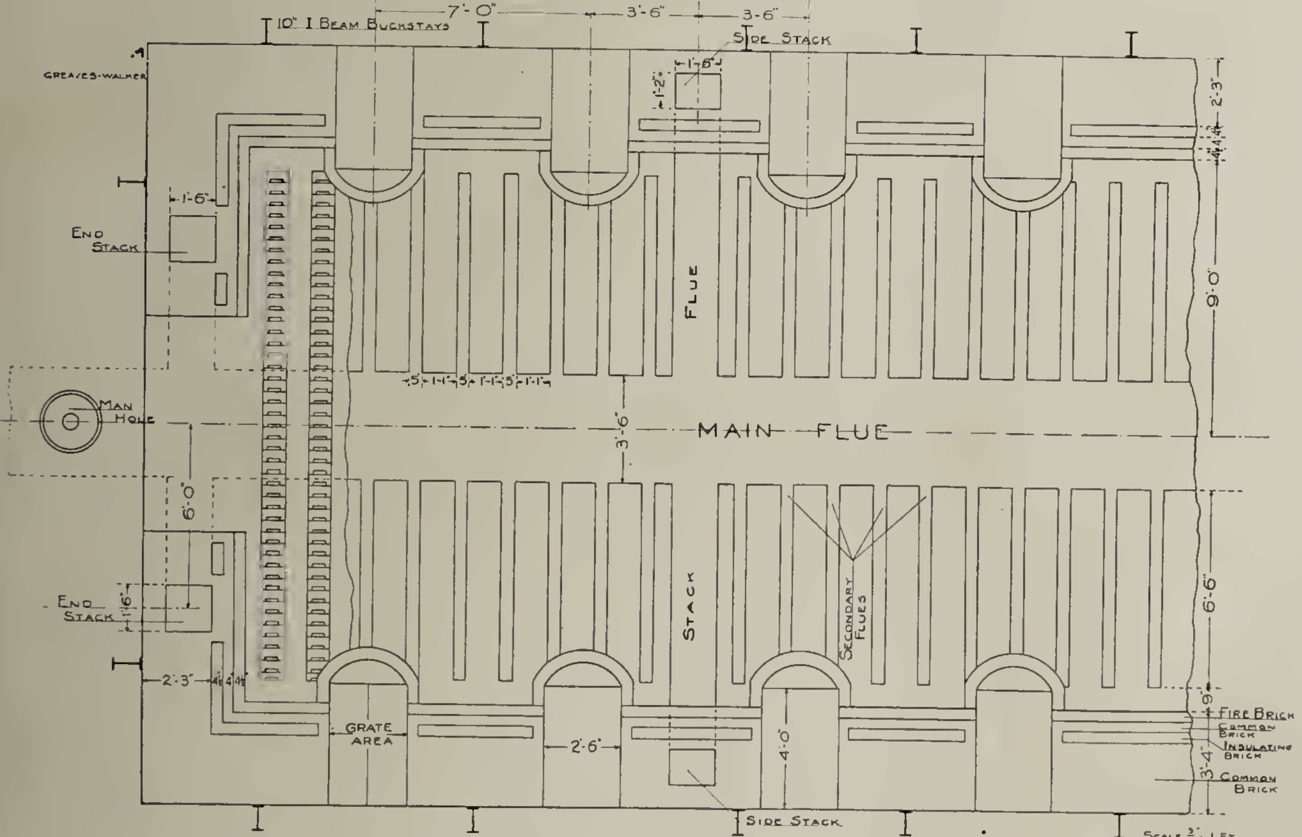


Plate 4—Rectangular Kiln Bottom

pacity should have a forty-foot stack, although this can be slightly modified if the kiln is located on high ground.

The question of stack area is an extremely important one. The theory upon which ordinary stacks are built will not answer for kilns, and it was therefore necessary to find just what relationship existed between the grate area of a kiln and its stack. After a number of years of close observation and experiment the author has found that the best results on the single stack type of kiln are to be had by providing *one square foot of cross sectional stack area for each eleven square feet of grate area.* Thus, in a kiln with ninety square feet of grate area, a stack should be designed having a cross sectional area of approximately eight square feet. Other engineers reach approximately the same conclusions by different methods, but the one set forth seems to be the simplest yet devised and therefore the most useful.

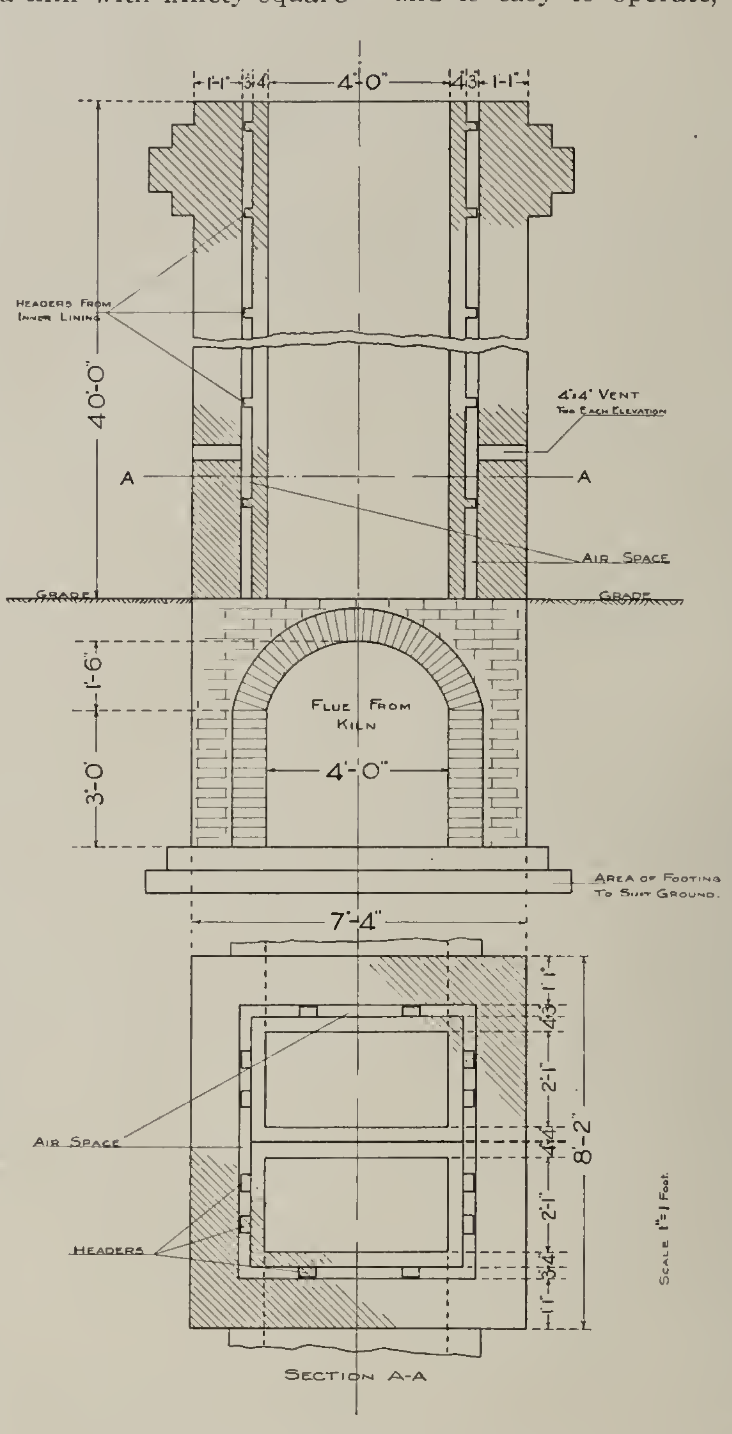


Plate 5—Two-Kiln Stack

A trouble found with most multiple stack kilns is that they generally have too many stacks. This is particularly the case with the earlier kilns of this type. In such cases a number of the stacks will "back draft," *i. e.,* draw the wrong way during various stages of the burn, thus prolonging it. The author has bricked up half the stacks in kilns of this kind and easily reduced the burning time by one half.

On account of the more equal distribution of the draft and the fact that less work is required of them individually, the stacks on a multiple stack kiln need not be as high as for the single stack type. However, the ratio of stack area to grate area is larger. In the multiple stack type the proper ratio is *one square foot of cross sectional stack area to nine and two tenths* (9.2) *square feet of grate area.*

It is good practice to provide one or two stacks at each end of a multiple stack kiln, no matter what the length. These stacks insure better draft at the wickets—spots to which it is usually hard to pull the heat in any kiln. The stacks should be equally spaced, as nearly as possible, on each side of the kiln, and aside from the end stacks, one side stack should be provided for each three fire-boxes.

The proper draft will be obtained if the stacks are carried up to a point *six feet above the inside top of the crown.*

DAMPERS

There seems to be a great variance of opinion among clayworkers as to the best method of dampering a kiln, or as to whether a damper is necessary at all. Certainly the men who stand for the damperless kiln for all purposes cannot have had a wide experience, for it is obviously impossible to get the required results with all types of clay when no dampers are used. Instances of this would be dark flashed face-brick and salt-glazed ware. There is not the slightest doubt but that perfect results can be gotten without the use of dampers in some cases and under the direction of expert burners. However, since about one plant in fifty is equipped with experts, a kiln is required which can be handled by the kind of labor that is within reach of the forty-nine.

Many types of efficient dampers are available, but most of them present some difficulty in construction or operation. The hinged damper at the top of the stack is very good, but is not at all popular, principally on account of the constructional difficulties. The sheet damper, dropped into the stack flue or shoved into the stack, is very simple and very efficient, but when made of sheet or cast iron becomes very troublesome through warping. When made of fire-clay slabs or brick it is cumbersome and hard to handle.

Another type, but one very seldom used, is very efficient and is easy to operate, except in cases where much flashing is done. This is the wicket damper. It is merely an opening near the base of the stack equal in area to the cross section of the stack. When the kiln has full draft this opening is closed with brick, mudded over. As it becomes necessary to cut the draft the brick are removed from the wicket one at a time. The rush of air into the stack through the opening thus made, cuts the draft in the kiln as effectually as though a sheet had been shoved into the flue. If more draft is required after once cutting, the brick are put back in the wicket. In the single stack kiln it is necessary to choose between one of the above methods and put up with the difficulties encountered.

Multiple stack rectangular kilns are likely to require more dampering than the single stack round type, unless operated by expert burners. This is due to the fact that if the fires are allowed to get hotter in one part of a kiln than another, the heat from the balance of the kiln is naturally drawn towards this "hot spot." Some means must be used to correct this condition, of course, and the damper is usually resorted to, an effort being made to drive the heat to the cooler portions. The author does not wish to go on record as saying that a damper is necessary to correct such a condition (as it is not) *but the great majority of burners are not capable of handling the situation without a damper, and it therefore becomes a comparative necessity.* The design of the kiln has much to do with the case. Proper stack, flue and fire-box proportions tend to make it easier to control and prevent such conditions.

When dampers are necessary in a multiple stack kiln, the easiest and cheapest one to use is a flat sheet of iron laid on top of the stack. The stacks are, as a general rule, low enough to reach from the top of the wall or platting. Any of the methods suggested for a single stack kiln may be used on the multiple stack type.

WALLS AND CROWNS

Naturally there is no standard thickness for kiln walls, but there is a maximum limit to which it is necessary to build them. In the absence of reliable data on the subject of furnace construction in our own industry, it is necessary to look to other industries where the data is more complete. The metallurgical and other industries have done a vast amount of investigating and have recently paid special attention to the prevention of excessive wall radiation.

Three points are generally kept in mind by the clayworker when building a kiln: a wall of sufficient thickness to stand the strain; a wall of such thickness as to prevent excessive radiation and a wall thin enough to conform to good fire-box design. You can find kiln walls all the way from eighteen inches to six feet thick. The man who built the eighteen-inch walls fulfilled all the requirements of strength and got away from one difficulty—that of the concentration of heat in a deep fire-box—but he got into another difficulty. He had excessive wall radiation. The man who built the six-foot walls got away from excessive wall radiation, but concentrated the heat in his fire-boxes, thereby entailing heat losses in the walls and high repair charges through the frequent burning out of his fire-box arches.

In determining the thickness of walls these difficulties must be borne in mind. Considered from all angles, *thin, straight* walls are the best, *if they can be insulated,* as in this case the fire-box is thrown inside the kiln and the fuel does not waste considerable of its energy in heating up and burning out the walls. The setting space lost by projecting the fire-boxes into the chamber, while a considerable item, cannot be compared with the saving of time, fuel and repairs during the life of a good kiln. If an uninsulated wall is built, it must be as thick as possible and still be compatible with good fire-box design.

As a general rule the walls of rectangular kilns are built thicker than those of round kilns. This is necessary on account of the difference in the method of ironing the walls. *The bands on a round kiln are much more efficient than the irons on a rectangular kiln.*

THE EFFICIENCY OF THE DOWN DRAFT KILN

Before proceeding further with the discussion of this subject it would be well to look into the efficiency of the down-draft kiln. The author is pretty certain the following figures will surprise many clayworkers, even though this data has been given wide publicity. The results represent heat balances taken on three kilns working under normal every-day conditions, and probably represent average conditions on the average yard, taken the country over. The work was done under the supervision of Prof. A. V. Bleininger of the United States Bureau of Standards.

Sewer Pipe Kiln—Burned to 2000° F.

Heat lost by flue gases (through stack)	18.60%
Heat lost by ashes	4.58%
Heat lost by radiation and cooling ware	71.10%
Heat actually used in burning ware	5.70%

Paving Brick Kiln—Burned to 2030° F.

Heat lost by flue gases	29.9%
Heat lost by ashes	3.9%
Heat lost by radiation and cooling ware	54.9%
Heat actually used in burning brick	11.3%

Building Brick Kiln—Burned to 2000° F.

Heat lost by flue gases	27.33%
Heat lost by ashes	3.51%
Heat lost by radiation and cooling ware	49.61%
Heat actually used in burning brick	19.55%

Experiments have shown that approximately 25% of the heat stored in a kiln just off fire, is recoverable for use in waste-heat drying. This, according to the above table, leaves approximately 25% a dead loss, due to radiation. Consider the last and best case in the light of these figures. *Roughly they mean that on the average yard, burning coal at $2.00 per ton, and using 1,200 pounds (or $1.20 worth) per thousand brick, only 24 cents in actual value is being actually used out of each 1,200 pounds. Actually 96 cents is being lost out of each 1,200 pounds, or $1.60 out of each ton.* A rather staggering loss. But the most important point is that out of each ton *fifty cents' worth is being lost through the walls and crown.*

Taking the country over, it is the author's opinion that a good majority of the kilns are losing well over 25% of their efficiency through the walls and crowns, and many of them are burning coal costing from $4 to $6 per ton.

Accepting the figures of 25% loss and $2.00 per ton, and allowing 1,200 pounds per thousand brick, using a thirty-foot round kiln with a holding capacity of 65,000 building brick, it will readily be seen that each time the kiln is burned off the amount of $19.50 is being generously thrown to the winds.

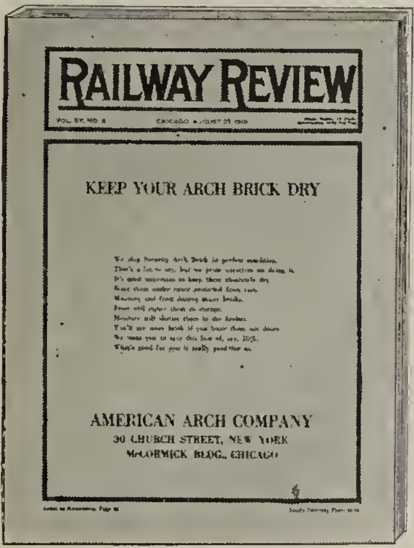
(To be Continued)

Some Noteworthy Advertising

The illustration below is the front cover of the "Railway Review," issue of Aug. 21, 1915. The cost of this cover is $250 for each insertion.

The American Arch Company, as will be seen by reading the advertisement for which the above sum was paid, makes a certain form of fire-brick. As a consequence, the American Arch Company may be said to be a member of the big Clay Family and by looking in Dun's or Bradstreet's (if in no other way) we learn that it is one of the Wealthy Relations.

It is well to know, however, that the American Arch Company thinks well of trade journals. That is convincingly shown by its willingness to spend $250 to be seen on the outside front cover of one of them.



RAILWAY REVIEW

KEEP YOUR ARCH BRICK DRY

AMERICAN ARCH COMPANY
30 CHURCH STREET, NEW YORK
McCORMICK BLDG., CHICAGO

Rocky Mountain Brick Company Expanding

The erection of a new plant equipped with the most modern machinery, at an estimated cost of about $25,000, is a proposition that will be discussed by stockholders of the Sanitary Brick Company, Golden, Cal., at a meeting to be held in the near future. The proposed improvement would increase the capacity of the plant to about 6,000 enameled brick a day.

Although negotiations have not yet been entered for the new site, several are being quietly investigated, each, of course, being close to shipping facilities. Beyond the fact that the plant will remain in Golden, absolutely no information is being given out with regard to selection of a new site.

The new plant, it is stated, will be constructed with a view to permanency, the success of the enterprise being firmly established. New machinery and kilns will be installed throughout, and will be the best type that can be purchased

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P. W. Greene, architectural engineer with the Sun Brick Company, Ltd., of Toronto, has been gazetted a lieutenant in the Thirty-fifth Battalion, the "crack" battallion of the Third Contingent. They are ordered to the front and will leave in about two or three weeks.

Greene has been with the Sun Brick Company nearly two years and is a graduate of the University of Toronto, recently passing through the Engineer's School and Infantry School for Officers.

The Facts of the Brick House

Some Information as to Its Reason for Being, Its Cost and Source of Income, as Well as Future Plans

FOR MORE THAN A MONTH the model brick residence at the Panama-Pacific International Exposition has been open to the inspection of the thousands of visitors who have thronged the exposition grounds. Those who have visited the exposition since the first of August and returned to their homes in various parts of the country, have expressed a very considerable curiosity regarding the cost of the house and, incidentally, its object.

It is the purpose of this article to tell something of the cost and to give proper credit to the men whose contributions of labor, material and money have made this unique exhibition possible. It is also intended to provide a way of answering the questions that may arise as to the purpose of the house.

THIRTEEN THOUSAND DOLLARS EXPENDED

Up to and including Aug. 31 a total of $8,899,50 was contributed in actual cash (or in material that was shipped to Chicago and sold for cash): Labor with an estimated value of $1,700 was donated by the Bricklayers, Masons and Plasterers' International Union of America: Construction material, including sanitary fixtures, exterior and interior woodwork, ornamental terra-cotta, garden appurtenances, etc., to a valuation of $3,200. was donated by manufacturers and dealers located in California. A list of these contributors is published on the opposite page.

When it is understood that the basic thought of this model house was that it should be *one of moderate cost and within the means of a large proportion of America's home builders,* the amount that has been expended seems out of all proportion. The architects who drew the plans aimed at a cost of $5,000 and to this was added, perhaps, $1,500 to cover the estimated cost of a detached garage situated in what was known as a "service court." This garage was made necessary in order to give the building an over-all length which would prevent its being dwarfed by the immense exhibition buildings that surrounded it.

A writer who has lived with the exposition from its early planning until the present time and who has absorbed the magnificance of its architecture, has written of this model house·

"Between the golden dome of Massachusetts State House and the waters of the Bay, there is a lawn which seems to have been spread for a little building that must have been lowered into place upon a gossamer of reposeful fancy. It has no domes nor columns, no suggestion of massiveness nor of the marvelous. From the simple shingles of the clay tile roof, whose eaves are permitted by low walls of autumn-tinted brick to encompass a nestling brood of peeping windows, to the flowering vases and window boxes of terra-cotta, there comes a suggestion of shelter—warm, intimate and complete. Everything, from the terra-cotta fountain to the brick garage —from the tesselated tables in the diminutive walled garden to the brick-paved walks and drives—speaks of a place in which to live."

A PAINFUL BUILDING PROCESS

The model brick house was not "lowered into place upon a gossamer of reposeful fancy" but was built, brick on brick, by a painful process of soliciting subscriptions from an industry which had borne the brunt of at least two years of bad building markets and which stood face to face with the situation created by a world war.

Every process of manufacture where a raw product is turned into a finished material, carries with it the penalty of expense. Here the raw material of a co-operative spirit was turned into money and the processes of manufacture were costly in the extreme.

The erection of a real building, with solid walls and fireproof partitions, is a costly operation when the work is performed within the enclosure of an exhibition ground. The only thing that makes possible the erection of great buildings in exposition enclosures is that a temporary style is adopted and permanency sacrificed for architectural detail, color and vastness.

A "model" residence built of staff was inadequate. *The brick home built by the brick manufacturers and dealers of the country is real.*

It is no wonder, then, that the total amount expended upon it is just about twice what it would cost to build the same house with garage attached in any city in the country, *provided always that the building was erected under every-day building conditions, and the money to pay for it raised under ordinary conditions of finance.*

THE OBJECT OF THE BUILDING

Everyone who has visited the Pacific Coast knows that a combination of climatic conditions and foreign influence have made a deep impression upon the domestic architecture.

The severe climate of the New England States and the inheritance that comes to the inhabitants of that part of the country from their forefathers, has given them a distinctive architecture. It is "Colonial"—essentially English and largely brick.

Following the Atlantic Coast until the Southern climate and the Southern forests made possible the so-called "Southern Colonial"—now fast decaying—the same architectural influence is felt—English and brick.

In California the wooden bungalow has developed into a thing of surpassing beauty. The frame building coated with cement stucco has been brought to a point of perfection little known in any other part of the country.

Men who believe in fire-resistant construction and in the beauty and economy of clay products, feared the result of the "education" that would be given millions of prospective home builders by direct contact with California domestic architecture.

For that reason it was thought that this was the time for the development of the style of house that would be modest both in outline and cost; that would be fire-resistant to the highest degree possible with a comparatively small expenditure, and which, being copied in perhaps a thousand cities, would not be so startling in its novelty

(*Continued on Page* 350)

List of Contributors to the Building of the Model Brick Home

The Following Organizations and Individuals Have Given in Money, Labor or Materials Toward the Erection of the Panama-Pacific Clay Products House

Cash Contributions

Chicago Face Brick Association	$3,450
Chicago Common Brick Manufacturers	1,000
Hydraulic-Press Brick Company, St. Louis, Mo.	500
McArthur Brick Company, McArthur, Ohio	300
Hocking Valley Products Company, Columbus, Ohio	200
Columbus Brick and Terra Cotta Company, Columbus, Ohio	200
The Everhard Company, Massillon, Ohio	191
Hydraulic-Press Brick Company, Cleveland, Ohio	100
American Enameled Brick & Tile Company, New York, N. Y.	100
Claycraft Brick Company, Columbus, Ohio	100
Fiske & Company, Inc., New York and Boston	100
Iron Clay Brick Company, Columbus, Ohio	100
Kansas Buff Brick & Mfg. Co., Buffville, Kas.	100
S. S. Kimbell Brick Company, Chicago	100
Joseph W. Moulding, Chicago	100
Puritan Brick Company, Detroit, Mich.	100
Arthur D. Rogers, Boston, Mass.	100
A. B. Meyer & Company, Indianapolis, Ind.	100
Barr Clay Company, Streator, Ill.	100
Continental Brick Company, Davenport, Iowa	100
G. G. Wheat, Cambridge, Mass.	100
Wadsworth Brick & Tile Co., Wadsworth, Ohio	100
Darlington Brick & Mining Co., Pittsburgh, Pa.	100
American Clay Machinery Company, Bucyrus, Ohio	100
Kittanning Clay Products Company, Bradford, Pa.	100
Bradford Pressed Brick Company, Bradford, Pa.	100
Hay Walker Brick Company, Pittsburgh, Pa.	100
Kittanning Brick and Fire Clay Co., Pittsburgh, Pa.	100
Western Brick Company, Danville, Ill.	75
Chisholm, Boyd & White, Chicago, Ill.	50
Alliance Brick Company, Alliance, O.	50
Fallston Fire Clay Company, Pittsburgh, Pa.	50
Detroit Brick Mfrs. & Dlrs. Assn., Detroit, Mich.	50
Sheffield Brick & Tile Co., Sheffield, Iowa	40
Verdigris Valley Vit. Brick Co., Neodesha, Kas.	25
Coffeeville Brick & Tile Co., Coffeeville, Kas.	25
Bloomfield Brick Company, Bloomfield, Ind.	25
Belden Brick Company, Belden, O.	25
Kulage Brick Works, Hobart, Ind.	25
LaSalle Pressed Brick Company, La Salle, Ill.	25
C. E. Poston, Attica, Ind.	25
Moores-Coney Company, Cincinnati, Ohio	25
Pursell-Grand Company, Cincinnati, O.	25
Jamestown Paint & Varnish Co., Jamestown, Pa.	25
Ricketson Mineral Paint Works, Milwaukee, Wis.	25
Cincinnati Clay Products & Supply, Co., Cincinnati, O.	25
Kirschner Brick Company, East Fultonham, O.	25
Haeger Brick & Tile Co., Elgin, Ill.	25
Gaddis-Harrison Brick Company, Columbus, O.	25
Smith Brick Company, Omaha, Neb.	25
Farr Brick Company, Cleveland, O.	25
New Lexington Clay Mfg. Co., New Lexington, O.	25
Ricketson & Schwarz, Milwaukee, Wis.	25
Stark Brick Company, Canton, O.	20
Toronto Fire Clay Co., Toronto, O	15
Davenport Brick & Tile Co., Davenport, Iowa	10
Platt Pressed & Fire Brick Co., Van Meter, Iowa	10
Streator Brick Company, Streator, Ill.	10
Center Brick & Clay Company, Orviston, Pa.	10
Eureka Brick Company, Norfolk, Va.	10
George T. Dickover & Son, Wilkesbarre, Pa.	10
Columbus Contractors' Supply Co., Columbus, O.	10
Boone Brick & Tile Company, Boone, Iowa	10
Standard Brick Mfg. Co., Evansville, Ill.	5
J. C. Steele & Sons, Statesville, S. C.	10
F. R. Carter, Peoria, Ill	10
Brick Selling Company, Birmingham, Ala.	10
Warren Brick & Tile Co., Warren, , Ohio	5
Decatur Brick & Mfg. Co., Decatur, Ill.	5
Richards Brick Company, Edwardsville, Ind.	10
B. Mifflin Hood Brick Company, Atlanta, Ga.	5
Eureka Brick & Tile Co., Eureka, Cal.	3
West Salem Hollow Brick & Tile Co., West Salem, Ohio	2
Alabama Brick & Tile Co., Scottsboro, Ala.	2
Munson Brothers, Capron, Ill.	1

Gifts of Labor and Materials

Bricklayers, Masons and Plasterers' International Union of America (labor to the value of)	$1,700.00
N. Clark & Sons, San Francisco, Cal., (face-brick, flue-lining, fountain, vases and table standards)	1,351.00
Los Angeles Pressed Brick Company, Los Angeles, Cal., (roofing tile)	375.00
McNear Brick Company, San Francisco, Cal., (common brick)	369.50
California Brick Company, San Francisco, Cal., (paving brick for driveways)	256.00
Redwood Association, San Francisco, Cal., (exterior and interior millwork)	210.34
Diamond Brick Company, San Francisco, Cal., (red brick for walks)	200.00
Gladding, McBean & Company, San Francisco, Cal., (terra cotta coping and partition tile)	157.60
Simplex Window Company, San Francisco, Cal., (window fixtures)	95.00
Steiger Terra Cotta & Pottery Works, San Francisco, Cal., (mantel brick)	90.00
Pacific Porcelain Ware Company, San Francisco, Cal., (bath and lavatories)	73.00
United Materials Company, San Francisco, Cal., (glazed brick)	30.00

(*Continued from Page* 348)

as to offend local tastes long inured to mediocrity in home designing.

The object, therefore, was worthy. Its attainment would give the country safer and saner domestic architecture than any which had gone before it, and with it the intelligent use of fire-resistant materials in the small house.

That object is being attained. Thousands of visitors are being inoculated against the charm of wood and stucco—a charm insidious in this case because this class of house blends with the California landscape and is in harmony with the general architectural feeling of the neighborhood.

Were it not for the model brick residence at the Panama-Pacific International Exposition, we could confidently look for a host of California bungalows on the shores of the inland lakes, dotting the sides of the Eastern hills and rotting their way to oblivion on the great prairies of the Middle West.

Man is an imitative animal and in building—more than in any other pursuit—justifies the Darwinian theory.

BRINGING HOME THE TRUTH

In the original planning of the work of the Panama-Pacific Clay Products Association—one of the most important features of its educational campaign was the preparation of a book that would either be given or sold to the visitors at the model brick house.

Many suggestions were made and at one time it was thought that a book of this kind could be prepared. The preparation meant, however, the investment of a considerable sum of money, since it would be necessary to print a large number of copies—perhaps several hundred thousand.

In the meantime, the walls of the house were being completed, contractors had to be paid and as fast as the money came in, it was used in the building.

Today the house is open, the people are coming to it—but there is nothing in the way of printed matter with which to clinch the impression which has been made upon their minds by the house.

Unless the time of the exposition be extended (and this is now thought possible) the exposition will remain open only until the first of December. Consequently, but three months remain and this period is all too short to even discuss the proposition of preparing an adequate book.

The men in charge of the work have, therefore, decided to do the next best thing which is *to guarantee intelligent distribution of privately printed literature so long as that literature shall deal only with clay products.*

The only restrictions that have been put upon this distribution are given below and it is well to mention that these restrictions will be rigidly adhered to. They are:

First—Literature will be accepted only from the firms and individuals who have, by contributing money, labor or material, earned a place upon the list of contributors that is published in connection with this article. The only exceptions that will be made to this are those who contribute at a future date, and so earn a place upon a supplementary list which will be published in turn.

Second—Literature, if sent by freight, must be consigned to the Panama-Pacific Clay Products Association, in care of N. Clark and Sons, 116 Natoma St., San Francisco, Calif.

Third—Literature if sent by mail or express must be addressed to the Panama-Pacific Clay Products Association, care of "The Brick Home," Avenue of States and Avenue of Nations, Exposition Grounds, San Francisco, Calif.

Fourth—In every instance the freight, postage or express must be prepaid. This is imperative.

WHAT "LITERATURE" MEANS

A glance at the list of contributors will show that there is a very large number of men entitled to the privilege of having their printed matter distributed in the model brick house. The object of admitting privately printed literature to this distribution is more to educate the visitors to use brick—anybody's brick—than to fasten their minds upon the name of the man who paid for the printing.

In other words, cut out the business cards and unless you have something to send that is worthy of the setting, do not waste freight, postage and express by sending valueless material.

Unless you have been a contributor to the Panama-Pacific Clay Products Association's fund or have contributed labor or material, do not think that by simply sending a package of your individual literature to one of the addresses mentioned, you will be able to secure the free distribution of this printed matter—through any one's carelessness. *A copy of the list of contributors is in the hands of the superintendent and unless the packages come from those who have actually supported the proposition, they will not be opened. For this reason it is well to put your name on the package.*

Do not think that because the funds contributed to this movement have been insufficient to enable it to produce a literature of its own, that the management will be "glad to receive yours." Such is not the case.

The lowering of the gates, so to speak, to privately printed literature, has been done so that a promise may be redeemed. You earned a certain "right" by contributing. You exercise that right when you send your literature for distribution.

REGARDING THE MISSING SUBSCRIPTIONS

It has been said that a large number of clayworkers throughout the country who should have subscribed to this fund (but who did not) withheld their support through not knowing exactly the amount that they ought to contribute. The circulars that were sent out were indefinite. In most cases they said "Give all that you can afford."

In many cases these circulars came at a time when the recipient felt that he could not afford anything and, as a consequent, that was the amount that was sent.

The list of contributors which is published in this issue of "Brick and Clay Record" is a roll of honor—a place upon it has been earned by one concern that subscribed one dollar and this place is as honorable as that occupied by those whose contributions have run above a thousand.

The choice between the minimum and the maximum amounts is wide and it would appear as though, in the light of the dawning of a prosperous building year, many clay products manufacturers who could not see a reason for subscribing in the past, will now see a reason for contributing to a well defined and constructive movement.

Send checks to Charles Bonner, Treasurer, Chamber of Commerce, Chicago, and let your name appear upon the lists that are still to be published and for an amount that you cannot afford to withhold.

A representative of the Panama-Pacific Clay Products Association is now on his way to the exposition, to take charge of the exhibit and meet the visitors to the model brick house. He is a man well known in the world of brick, and his reports of the work at the exposition will be very interesting.

Faculty Changes at the Illinois University

SPECULATION HAS BEEN RIFE as to Professor Stull's successor at the head of the department of ceramics at the University of Illinois, and it is with great satisfaction that "Brick and Clay Record" makes the first announcement to its readers of the action of the United States Government in granting a six months' leave of absence to Professor Albert V. Bleininger, of the Bureau of Standards, in order that he may assume charge of the ceramic work at Urbana for the first semester of 1915-16.

Associated with him will be Ralph Kent Hursh, with the title of assistant professor in mechanical engineering, who, with Arthur E. Williams, Barney S. Radcliffe and R. R. Danielson, will be the instructors in the ceramic department.

It is interesting to note that the courses in ceramics and in ceramic engineering were transferred to the College of Engineering on July 1 of the present year, and, this, it is expected, will be reflected in the character of work that will be given during the balance of the year and all of next. Prior to the date mentioned, the courses in ceramics were included in the College of Liberal Arts and Sciences, and it is small wonder that "ceramics" to the average mind, had more to do with blunged bodies and glazes than with the rougher clay products.

A. V. BLEININGER, B. Sc.,
Who Will Direct the Ceramic Courses at the University of Illinois

The degree of Bachelor of Science is conferred on those who complete a course in ceramics. Full details as to the amount of fees required may be obtained by writing to the Registrar, at Urbana, Illinois, but for the information of those who may be immediately interested, the following figures are extracted from the 1914-15 year book of the University:

"The following are estimated annual expenses for undergraduate students attending at Urbana, exclusive of books, clothing, railroad fares, laboratory fees, if any, and small miscellaneous needs: Semester fees, $24; room rent for each student (two in room), $72 to $80; table board in boarding houses and clubs, $162 to $200; washing, $20 to $30; total, $272 to $334.

"Other necessary expenses will need to be taken into consideration. For all of the necessary expenses of the year the average student is likely to need not less than $375 to $500. Most students spend more."

Is Interlocking Tile Brick?

Under the above caption, the Dallas (Tex.) "News" publishes the following:

"Inquiry has been made of the County Attorney's office with the request that an opinion be asked of the Attorney General as to whether interlocking tile can be used for construction of school buildings which have voted bonds for brick schools.

The inquiry is made in connection with the proposed new school for Houston school district No. 67, which recently voted bonds for a brick school. Both the architect and County School Superintendent T. E. Henry are said to be willing to have interlocking tile used in construction of the building, but County Superintendent Henry insists that it first be ascertained if it will be legal to use that material."

The question is—what is meant by "brick." Is it size? We must admit that a "Roman" shape brick is a brick, even though it be 12x4x1½ inches. And an "English" enamel brick is a brick, even though it be 9x4½x3. So also is a "Norman", which is 12x4x2¼ inches. And a paving block is a brick—despite that here, again, it adds another size factor to the definition.

Maybe it is material—burned clay. Then tile is brick—whether it interlocks or not.

Maybe it is solidity—then sand-lime brick are truly brick, and are allowed in every brick specification. So would cement blocks be allowed—that is, such cement blocks as are solid.

The manufacturers of burned clay brick of common building size have enjoyed a tremendous advantage in the fact that building codes have mentioned "brick" and builders have assumed that burned clay of certain shape, solidity and size was meant. The men who make shapes other than the standard brick shape, but whose product is made of the same material, have a good chance of coming in under these specifications, if they can prove that their product has the strength and other qualities that are assumed when the word "brick" is used.

Rug Brick in Iowa

The Boone (Iowa) Brick, Tile and Paving Company claims to be the only plant in that state making a vertical texture rough face-brick, or what is commonly known as a "rug" brick. At the beginning of the present year this company had on hand about 5,000,000 brick, one-half of which were commons and the other half a smooth face-brick. The demand for the latter not being very good, they were sold as commons, and the manufacture of a rough-textured face-brick was undertaken. Prior to taking on the new line of face-brick, the daily capacity of the plant was 45,000. Now, however, the daily shipments from this plant exceed the output by 25,000, at which rate the large reserve stock will soon be exhausted.

More Model Brick Houses for Reading

Building operations in Reading, Pa., have been numerous all summer. Houck and Sherman, contractors, have started work on a score of brick houses, which are to be modern in every respect. These parties have also purchased a part of the Muhlenberg estate in the northeastern section of the city. Muhlenberg Brothers, it will be recalled, started last year to solve the Reading housing problem, by erecting homes that workmen could afford to purchase at figures they usually pay in the more congested districts. Houck and Sherman expect to erect about thirty houses on this plot, many of which will be of an entirely new pattern, and all will be built with brick. Work on a few of the houses may be started this fall.

Another Paving Brick School

Paving Brick Manufacturers Organize Institute to Study Manufacturing Problems and to Improve Product

THE GOING-TO-SCHOOL IDEA is taking hold in the paving brick industry. Starting with "Daddy" Blair's summer school, which held open sessions in Cleveland and Niagara Falls (wherein city engineers, highway commissioners and others were scholars), it has developed the point where those who were then teachers have formed a "school" of their own and are prepared to go into class with each other.

This "school" is known as the Institute of Paving Brick Manufacturers and its officers are F. R. Kanengeiser, president; D. E. Humphrey, vice-president; Robert Keplinger, secretary, and Spencer M. Duty, treasurer.

Like most organizations that feel a real need, the institute is less the result of a deliberate plan on the part of a single organizer than the outgrowth of a spontaneous desire on the part of many men for a more intensive and practical study of their problems.

The Institute of Paving Brick Manufacturers and Its First Outdoor Class. The Bessemer "Pullman Special"

Conferences were held in Detroit during the early part of the present year and these resulted in a meeting held for the purpose of organization; this meeting was held in Youngstown, Ohio, in May and officers were elected; a committee was appointed to draw up a constitution and by-laws and these were adopted at the meeting held in Canton, Ohio, the latter part of June.

"Whereas," recites the preamble, "there are now manufactured in the United States of America, from certain shales and clays, brick and block especially made for use in building and constructing streets and roadways; and, as it is desirable that such brick and block be manufactured in a manner best suited and adapted for said purpose, therefore the subscribers hereto shall and do constitute a society to be known as the Institute of Paving Brick Manufacturers."

The object is further stated to include meetings, discussion and the reading of papers as a means of disseminating among the members further knowledge as to the manufacture of their product.

In distinction from those gatherings where brickmakers and men of allied occupations meet for the interchange of ideas, this institute is designed for sole benefit of the paving-brick manufacturers. All active members must be actively connected with an established company manufacturing paving-brick. For associate membership, men may be admitted who are engaged in furthering the interests of the paving-brick industry, even though they are not brickmakers. An honorary membership is reserved for those whom the Institute chooses to honor for reasons satisfactory to itself. The dues of an active member are $20 a year, while an associate member pays $5 for each meeting attended.

The active members constitute the board of directors. Officers must be active members and no two of them identified with the same concern. Provision has been made for committees on membership and honorary membership and also for a committee on programs, which will be responsible very largely for the measure of usefulness which the institute attains, since it determines the subjects to be discussed at each meeting. Regular meetings are to be held quarterly and at different places as decided by the committee.

The institute will avail itself not only of the best technical talent for its programs and discussions, but will devote a generous portion of its time to plant inspection.

The next meeting will occur at Alton, Ill., on September 22, 1915. The place is selected with view to the opportunity it affords to visit the plant of the Alton Brick Company. It is planned to have the inspection of the Alton plant occupy the entire day and the meeting will be held in the evening.

The organization of this institute is an evidence that a new day is dawning in at least one branch of the clayworking industry; it shows that the men who are responsible for its organization take a mutual pride in the advance of their profession and realize that each will receive a considerable advantage through the reputation for good service that will come to the entire industry as a result of their efforts.

The institute is advancing one of the cardinal objects of the National Paving Brick Manufacturers' Association—which is the elimination of all secrecy in connection with manufacture and, so far as is possible, all jealousy which may arise in making sales.

The institute has extended its hand to the industry and issues an open invitation to every manufacturer of paving-brick. It asks him to come to Alton, Ill., on Sept. 22 and see for himself—not only the efficiency of the Alton plant and the men and machinery that make that efficiency possible, but the men who are trying, by showing each other how, to make every man who makes paving-brick—make money.

With the Potteries

A hundred or more members of the United States Potters' Association met at East Liverpool, Ohio, on August 25, to consider the proposal for improved working conditions presented to them by the National Brotherhood of Operative Potters, which were formulated by that body at its Atlantic City convention in July. These proposals do not include an increase in wages, but contain thirty-four requests for improvement in working conditions, among them being the installation of dressing rooms, with running water and all modern improvements. The operatives have also asked that a committee be named to devise some means of stamping dishes with the union mark. A joint wage conference will be held at Atlantic City, September 9, 10 and 11, to consider an agreement for two years, beginning October 1.

For the purpose of manufacturing vitreous hotel china, and possibly later, vitreous china dinner ware, the DuBois China Company, has been formed at DuBois, Pa., the pottery being located at Falls Creek, Pa., two miles north of DuBois. This plant is to be under the management of John Lasalle, formerly a pottery decorater at East Liverpool, Ohio, and more recently in charge of small potteries at Parkersburg and Paden City, W. Va. Pottery workers for the new plant, which will have a capacity of four kilns, have been procured from the East Liverpool district.

The demand for American pottery during the past few weeks has taken such a spurt that additional kilns have been placed on the active list, which gives the industry a greater kiln capacity in the western district than at any time in the past twelfth month. The Homer Laughlin China Company has placed its No. 1 plant in operation thus increasing the capacity of the plant six kilns and permitting the firm to operate to capacity. The new plant of the company had not turned a wheel since last fall and as a result, with the recent increase in production, about two hundred pottery workers were given employment. In addition to this increase, the Steubenville (Ohio) Pottery Company plans to take over an idle plant at Toronto, Ohio, formerly operated by the American China Company.

Judging from the volume of orders now being received by the western general ware manufacturers, the fall business gives promise of being the heaviest ever known. Taking the western district as a whole, operations are about on a scale of from eighty to ninety per cent. In a number of instances it is related that there is enough business on file to keep certain plants in continuous operation from four to six weeks—even if no more business was received in the meantime.

A falling off in pottery imports to this country is shown in the British Government's Board of Trade report for the first six months of 1915. When compared to the corresponding period last year, a decrease in value of $46,665 in exported ware shipped to United States is shown, a figure which brings the total value of that commodity received in this country from England during the first six months of 1915 below that for the corresponding period of 1913, which figure was below that for 1914.

With a total capacity of fifty-five kilns, Sebring, Ohio, is now the second largest pottery producing center in the United States. This capacity is also to be increased at an early date. Throughout the past year, the Sebring plants have been operated on a much larger scale than many other potteries, and production has been almost up to capacity.

It is now reported that the new Wayne China Company, recently formed at Wooster, Ohio, will manufacture general ware instead of going into the cooking ware business. It is claimed that the production of popular-priced, white lined cooking ware now exceeds the demand, while the consumption of American dinner ware is increasing on account of the difficulty of importing any large volume of ware.

Announcement is made of plans for the erection of several new kilns at the Albright China Company's plant at Carrollton, Ohio. This is the last of several new potteries that have been started in the Ohio district, and the cause of the immediate increase in kilns is said to be due to the large volume of business being offered the company.

Electrical porcelain plants in Ohio are operating on better schedules now than at any other season this year. New electric construction work has much to do with the condition of this business, this class of work having been exceptionally low this year. The porcelain plants in the Barberton (Ohio) district are working full time, as well as those at Lisbon and East Liverpool.

With a view of cutting the cost of its fuel bills, the National China Company, at Salineville, Ohio, has started extensive gas drilling operations near its plant. It has been pointed out that, inasmuch as this point is within the Columbiana oil belt, gas should be also found there. The development is being closely watched by other manufacturers in that territory.

The Shenango China Company, New Castle, Pa., manufacturers of hotel china, has increased its force and is operating to capacity, employing more than three hundred persons. On account of the inability to secure foreign-made hotel china, all of the American vitreous china potteries are working to capacity.

J. W. Patterson has been appointed sales manager for the D. E. McNicol pottery at Clarksburg, W. Va. Mr. Patterson is thoroughly acquainted with the pottery trade, having served for eighteen years as manager and treasurer of the George Crockery Company at St. Joseph, Mo.

Chattanooga, Tennessee, is seeking a pottery plant and all sorts of inducements have been offered to secure one. Overtures have been made to some interested in the business in the Ohio district to move south, but so far no offers have been accepted.

After a brief idleness the plant of the McNicol China Company, located at Clarksburg, W. Va., has resumed operations, work being on a scale of about ninety per cent of capacity. This plant is engaged in the manufacture of dinnerware and specialties.

The Albright Pottery Company at Carrollton, Ohio, has completed plans for two additional general ware kilns and two decorating kilns and it is expected that work on their construction will be started immediately.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

DEVELOPMENTS in the field of mechanical excavation have come fast, and with a natural desire to keep pace the Marion (Ohio) Steam Shovel Company decided to build gasoline shovels to be operated by a gasoline engine through the principle of friction.

Marion Gasoline Shovel in Operation

In designing and building this shovel there was no intention to displace the steam shovel, but rather to lower costs that are now expensive on some operations.

The field of gasoline shovels obviously must be confined to the medium and lighter forms of excavating, and, so thus far they have confined themselves to the revolving type of shovel. An analysis follows:

Marion gasoline shovels should be known as the single motor type, in which all operations are performed by power from one main engine and controlled by frictions of the outside band type. These frictions are operated by hand power and are so arranged with knuckles and toggles as to minimize the effort on the part of the operator. The frictions will be described in detail later.

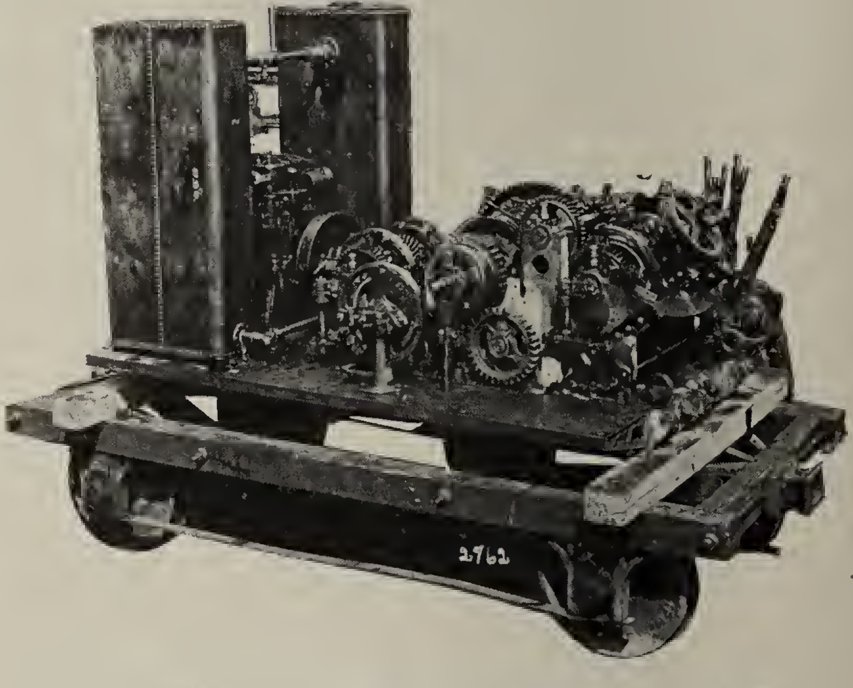
The motor is of the constant speed, four cylinder, four cycle, vertical marine type, with throttling governor control, jump spark ignition and high tension magneto. It is provided with water circulating pump and splash lubrication; and by fitting it with the proper carburetor it can be operated on any fuel down to 39 deg. Baumé. It is designed for a medium high speed. A fly wheel is fitted between the engine and load to relieve the crankshaft of the inertia strains due to sudden changes in torque.

Power is transmitted from the engine to a bevel pinion mounted on an extension of the engine shaft. The gearing is enclosed in a dust-proof casing and is run in heavy oil or grease.

The reverse motion necessary for propelling is obtained by means of frictions on a "reversing" shaft, i. e., the right-hand friction turning in one direction, while the left-hand friction turns in the opposite direction. The lever for operating these frictions is so connected that moving it forward will propel the shovel ahead, while placing it on center or neutral position will release both frictions; moving to the rear position will propel the shovel backward.

While the primary purpose of the reversing gears is to impart a forward and backward propelling motion to the shovel the hoisting, swinging and crowding motions must be transmitted from this same reversing shaft; and it is evident, therefore, that further means must be provided for throwing the propelling mechanism in and out of gear. This is done by a friction and gear mounted on the end of the hoisting drum shaft. The gear meshes with a gear keyed to a horizontal shaft running directly over the rotating center; the opposite end of this shaft carries a bevel pinion which engages the bevel gear on the vertical propelling shaft, the lower end of which is designed exactly as on a steam shovel.

The swinging mechanism, while not at all intricate in design, is rather difficult to describe, and is not easily shown, either by blue print or photograph. The reversing shaft also carries a spur gear engaging a gear on the swinging or bull pinion shaft. On each end of this shaft is mounted a driver keyed to the shaft and a friction housing, which is keyed to a gear mounted loosely on the shaft, and fitted with bronze bushings. This gear is actuated by an outside band friction—a duplicate of the one on the reversing shaft, and engages a gear keyed to a shaft directly below and forward. On the other end of this shaft, then, is keyed a bevel pinion meshing into swinging crown gear, which, in turn, is keyed to the vertical swinging shaft. On the other end of this vertical swinging shaft—which is exactly as on a steam shovel—is keyed a spur pinion, which, in turn, meshes into the large rotating gear on the lower frame of the shovel.



Stripped Gasoline Shovel Showing the Compact Disposition of the Power, Power Transmission and Control Levers

Now, since the same mechanism is applied at each end of the bull pinion shaft, and since the bevel pinions engage the swinging crown gear at opposite sides, a reverse motion is obtained—as in the case of the propelling mechanism—simply by throwing in the opposite friction.

The hoisting drum is of the differential or "stepped" type, instead of straight barrel, as used on the steam shovel. In steam shovel operation, where throttling engines are used, the speed of the engines and of the dipper can be varied, but a gasoline engine is essentially a constant speed motor, and speed must be stepped down or up. Therefore, by designing a drum of small diameter on one end and large on the other, a hard pull and slow speed can be obtained when the dipper is in the pit and an increased speed with lighter load when the dipper clears the bank. The hoisting friction is very similar in design to the frictions previously described.

Forward of the hoisting drum shaft, and connected to it by means of an intermediate shaft, is a set of reversing frictions, similar to the reversing shaft frictions previously described. These frictions control the movement—the crowding—of the dipper handle. These frictions are both controlled by a single lever arranged so that when it is in central position both frictions are released and a brake is set to hold the dipper handle in any position. The shaft leading from the frictions to the boom is provided with a telescopic joint to allow for the variation in height of the boom. It carries bevel pinions on each end, engaging bevel gears. The balance of the boom, being exactly the same as on a steam shovel, needs no further comment.

The control of the Marion gasoline shovels is identical with the control of their corresponding types of steam shovels, the levers having the same positions and operating in the same manner. It is obvious, also, that the Marion gasoline shovel is a "one-man" shovel in the strictest sense, for the use of a gasoline engine instead of boiler makes a fireman unnecessary—neither is it necessary for the operator to leave the levers to look after the engine, for all control levers are within easy reach.

To convert the shovel into a single-motor electric shovel it is only necessary to substitute an electric motor of the proper capacity for the gasoline engine; the rest of the mechanism is identical.

Prolonging the Life of Dryer Cars

Perhaps the largest single expense item appearing on the cost sheet is that attached to the upkeep and renewal of the dry-house cars.

The swift deterioration of these cars is a matter of the gravest concern. The scrap pile out behind the boiler room is mute evidence of constant loss; and it is also a common sight to see the cars themselves in a dilapidated, flimsy condition, due to the ravaging effects of the heat, moisture and acid-laden gases in the drying tunnels.

The car decks wear out very quickly, because of the constant battering that they receive, each knock and rap knocking off its quota of scaly rust from the slats and angles, until finally the deck is too thin to bear its load, and it sways, causing injury to the ware.

There is no way to eliminate the destructive agents of heat, moisture and acid, but there is a method of fortifying against them, so that the metal is practically *rust proof.* That is by using a paint that is water, acid, gas, heat and fume proof. This is a large order for one paint, but all of these qualities are combined in a carbide paint that has proven its merit and reliability for more than ten years.

A dryer car covered with this carbide paint is practically immune to the rust creating agencies, and its life is a matter of wear and tear—not of corrosion.

It costs but a few cents to cover a car, to protect it so that the length of its useful life is doubled or even tripled. It is a rich concern indeed that can afford to be without it.

E. R. Stowell, of Oden, Mich., sells it in cans, and will be glad to tell you more about it.

"Home Electrical" Awarded Two Gold Medals

The "Home Electrical," an exhibit of the General Electric Company, in the Palace of Manufactures at the Panama-Pacific International Exposition, mention of which was made in this department several months ago, has received the unique distinction of being awarded two gold medals by the International Jury of Awards.

The "Home Electrical" at the Exposition

One of the gold medals was awarded the "Home Electrical" by the Department of Manufactures for the completeness of the exhibit, and as an exposition attraction. The second gold medal was awarded by the Department of Education, in recognition of the high educational value of the exhibit. The "Home Electrical" has been thronged with visitors ever since the Exposition opened, over 700,000 sightseers having passed through its rooms to date.

Fire Prevention

No plant owner, or superintendent who is responsible for the plant welfare, is ever wholly at ease regarding the danger from fire. There are so many points on a clayworking plant where the fire hazard is an ever present menace that only constant vigilance prevents the disasters that would destroy not only buildings and equipment, but throw all employes out of work.

Invariably watchmen are employed for night work, but their orders chiefly consist of the words: "Be careful of fire." All too often no systematic efforts are made to make the watchman's work efficient.

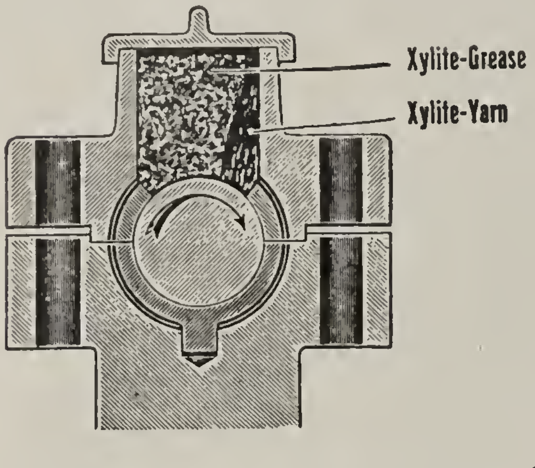
Watchmen will sleep. It is easier, too, to select a warm, cozy corner and to sit and smoke, than to keep on duty, and "in the long hours of the quiet night things will happen."

The Hardinge Watchman's Clock System provides one sure way of securing reliable watching. By its use you "lock the stable door before the horse is stolen" and a system of this character should be installed on every plant.

It guards against fire, theft and vandalism, and no better method is known to keep the night burners awake and doing. Write for complete information to Hardinge Bros., Inc., 1760 Berteau avenue, Chicago.

Modern Methods of Lubrication

The consumption of energy in any factory or motor is largely dependent upon the use of more or less suitable lubricants, and the cost of the latter is small in comparison to the cost of power. The factory or motor owner who uses the wrong kind, or worthless lubricants, to lubricate the machinery, shaftings, etc., will have to pay for his mistake, not only in the power bill, but in repairs. Lubricants used in factories for clayworking should be different from those used in paper and pulp mills, or, for that matter, many other industries. The lubricating action of the various oils and greases depends largely upon the pressure in the bearings and on the temperatures under which they have to work.



One of the modern methods of reducing the cost of manufacture and getting the greatest efficiency out of the machinery lies in the scientific method of lubrication. The old system of the long nosed squirt can has become obsolete in the up-to-date mill.

The modern manufacturing plant now uses what is known as the "Grease System," which system was invented and introduced by the G. B. Stock Xylite Grease & Oil Company, Port Huron, Mich. This firm has made a study of mill lubrication and has perfected a system which not only insures practically perfect lubrication, but reduces the cost of the old and other methods from twenty-five to forty per cent, saving labor and giving far greater efficiency of horsepower, showing in many cases a saving of fifteen to twenty-five per cent in the latter.

These figures are based on the results of actual tests made in different mills under varying conditions, and it is a well known fact that the easier and smoother the machinery runs in any mill the less "breaks" occur and the larger the production. Not only does the G. B. Stock Xylite Grease & Oil Company supply lubricants for the complete lubrication of the plant, but it makes a specially prepared lubricant for the purpose, one of the great advantages of which is its absolute cleanliness, there being no drip or waste.

Any mechanic working around or interested in machinery knows the great advantage of having all journals smooth, and knows that the smoother the journal and bearing the less power is required. After the machinist has done his utmost to overcome the friction by making the bearing as smooth as possible and by polishing the journal it is necessary to apply oil or lubrication to still further overcome or reduce the friction.

The majority of users of lubrication think anything will do for this purpose, and this is where the big mistake is made. If lubrication overcomes friction then the better the lubricant (and the more adapted for the purpose) the more friction is overcome and the less horsepower expended without return. It is estimated that 33 to 38 per cent of the horsepower of an engine is used to overcome the friction of the engine itself and the machinery driven.

The Xylite system starts where the machinist's skill stops. By applying Xylite to the journal all of the small imperfections of the metal in the bearing and journal are filled up, making a perfectly smooth, hard surface. It is admitted that this does not overcome the friction entirely, but it reduces it from 10 to 28 per cent more than by any other method or system of lubrication.

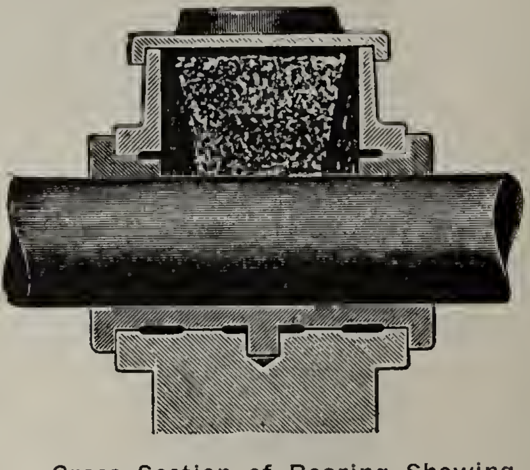
The cuts displayed with this article show the method of applying the Xylite System, which can be successfully applied to practically all of the larger bearings in the machinery. The Xylite Company also supply, where preferred, a grease without the yarn packing, which will successfully lubricate the hottest journals without waste: as well as cup greases for spindles, compression and automatic feed cups.

Reducing Costs by Analysis

When industrial conditions are subjected to a detailed analysis the losses found are usually of three kinds: Time losses, material losses and losses caused by bad sales methods and direction.

Losses in time are mainly due to the fact that the management does not know how long it should take to do each kind of work, so that it is impossible to properly coordinate the work, and time losses caused by break-downs of equipment, and the improper condition of equipment and tools. The detecting of losses in time is a problem of analysis. Step by step each operation from the clay pits to the kilns should be analyzed, and in most cases some astounding facts will come to light.

Consider first the general arrangement of all units of the plant and their relationship to one another. Is the distance of travel of the material from one operation to another a minimum? Remember that the work done is equal to the distance moved multiplied by the resistance. Can either the distance or the resistance be reduced? A reduction in either factor will decrease the amount of work, eliminate unnecessary moves and shorten the distance of necessary moves. How much time is spent in "cleaning up" after an operation, as, for example, time spent to move the steam shovel ahead? Remember that all of the time during which the shovel is not actually loading cars is dead time. Is the shovel operated correctly so that not too much clay is spilled? Perhaps spilling is caused by overloading the cars, or by not all of the clay falling into the cars. See that cars are not overloaded, and use a hopper to load cars. Investigate the move problem from a mechanical standpoint. What moves can be made by mechanical means, such as belt conveyors? Determine the cost of such methods and see whether or not it would be advisable to install them.



Cross Section of Bearing Showing Method of Applying Xylite Grease and Yarn

How much time is lost caused by breakdowns? Can an inspection system be put into operation by which such breakdowns can be predicted and thus avoided? Remember that the best repair boss is the one who has the least number of repairs to make.

How much time is lost in waiting for materials or tools, or when these are delivered in bad condition? For example: When the dies are removed from the machines, are they thrown on various places of the machine room floor, or are they thoroughly cleaned and placed in proper racks? When dies are properly cared for the time to change dies will be decreased.

After data of time losses of each operation have been obtained express this value of lost time as a percentage of the value of the total time. This will give a definite idea just where to commence in reducing lost time. It also acts as an indicator of the efficiency of the management; for the management is directly responsible for time losses.

After methods have been devised which reduce time losses, the capacity of the plant will be considerably increased for the same amount of equipment, and comparative costs lowered.

Improvements will suggest themselves by such an analysis. For example: On a certain plant the time of firing kilns was analyzed and such defects as the air passage beneath the floor filled with chips and dust, cracked fire-boxes, doors not tightly fitted, etc., were detected. The firemen did not pay enough attention to their fires. The first was eliminated by a thorough inspection and overhauling of the kilns, and the last by a strict supervision of the burners.

A thorough system of inspection will often aid to increase production capacities. All products should be carefully inspected before being placed in the kilns. The inferior ones should be discarded. This will increase the relative capacities of the kilns, and the damaged pieces can also be reground and the material used again.

The losses in supplies extend from haphazard purchasing through to the waste of inefficient use. Here also a careful analysis should be made in order to determine the best supplies for each particular use. Then the supplies should be cared for in such a manner that they will remain the best. They should be safeguarded in such a way that no part is lost before or after it is put to actual use. After the best methods of operation have been determined and taught to the workers the supplies will also be efficiently utilized.

The determination of how much it costs to produce each item is also a problem of analysis. Unless one is familiar with such costs it is impossible to lay out a definite and efficient sales policy.

After a thorough analysis is made of all details it is then possible to set a definite and high standard of operation. Operation standards for every kind of work and for each workman can be fixed, and the efficiency of each operation and of each workman determined by comparison with this standard. Then the labor conditions can be analyzed and a system of rewards introduced by which each worker is paid according to his effort. The record is measured in comparison with his approach to the fixed standard, and a higher reward given if he exceeds the standard. This will give the management the relative value of each worker, and the high officials can keep in close touch with the entire personnel of the company.

Scientific analysis and the thorough investigation of all details are the most important means of solving the problems of increasing costs and decreasing profits. Industrial competition is growing keener; wages are increasing, and it is almost impossible to raise the price of the product. Hence it is necessary to introduce methods which will simultaneously increase wages and decrease the cost of the product. This result has been attained in almost all types of industries by men who are especially skillful in the science of analysis and the practical application of the best methods as determined by this analysis.

This is the class of service that is given by an organization of efficiency experts, who bring into their work practical analysis and the ability to construct anew. It is the sort of service that in one clay plant revealed the opportunity to effect savings amounting to over one hundred thousand dollars.

Whether your plant is large or small you can benefit in a substantial manner by asking for the details from L. V. Estes, Inc., McCormick building, Chicago, Ill.

Modernly Equipped Plant

Thos. B. Wilson, of the Milton (Pa.) Brick Company, writing to President Thwing, of the Thwing Instrument Company, Philadelphia, says in part:

"Everything in and about the plant was constructed in the most modern way, to economically manufacture face and paving brick, and it has been in successful operation since its start about a year ago, with orders ahead for months of continuous operation.

"We have wire-cut brick machinery, electric power throughout, down-draft kilns and waste heat dryer system, also a steam shovel.

General View of the Milton Brick Company's Plant

"It is one of the most successful plants we ever constructed, and as a matter of course is equipped with the Thwing Instrument Company improvements."

The Chambers Brothers Company, Philadelphia, Pa., has received splendid reports from the Excelsior Brick Company, Fredonia, Kansas, regarding its No. 10 Multiple Brick Cutter, recently installed. A recent letter advises that the cutter worked perfectly from the start, and cuts the ware true and straight. It cut 100,000 brick in ten hours, all good brick, at that. On the day following it cut 52,000 brick in the forenoon, a period of five hours. The Excelsior Brick Company further states that in its judgment this cutting table is the best it has ever seen in operation.

The corporate name of the Marion-Osgood Company, Marion, Ohio, has been changed to The Osgood Company. For some time they have used the trade name "Osgood," on their shovels and dredges, and other excavating machinery, and this change of firm name to The Osgood Company, eliminating the word "Marion," has been done to conform with their trade name.

The Bruce-Macbeth Engine Company, 2134 Center St., Cleveland, Ohio, manufacturers of Bruce-Macbeth Vertical, Multi-Cylinder Gas Engines, have just issued a new Bulletin on their engines, containing cross-section diagrams and giving a partial list of over 400 installations in all parts of the United States and Canada. A copy will be sent to you upon request.

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

Our business is diagnosing and remedying
TROUBLES
of manufacturing for the Clayworker. If you are experiencing loss in any department, mechanical, drying or burning, consult
H. & B. COPPING, Kankakee, Illinois
We personally do the work.

SCUM **Do You Have It Can You Cure It ?**
You could if you knew just where to look for it. Send sample of your clay, your temper water and your coal to me to be analyzed. I will tell you where the trouble is, and how to cure it.
H. M. DEAVITT, 209 So. La Salle Street, Chicago, Ill.

DRYER CARS
ALL STYLES—ALL SIZES
H. W. GERLOCK, Huntingdon, Penna.

Excessive Freight Rates
The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.
Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.
These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.
IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

Ricketson's Mortar Colors
Pure, brilliant in tone, economical in use, absolutely reliable and a permanent guarantee against fading and washing. Why not insist on having them?
Red, Brown, Buff, Purple and Black
Ricketson Mineral Paint Works, Milwaukee, Wis.

BRICKMAKERS' HEADQUARTERS
FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A

Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff **Strongest and most durable**
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U. S. A.
Correspondence solicited

The Semi-Monthly Trade Review

WITH *finis* written across the diplomatic negotiations between the United States and Germany with regard to the latter's submarine warfare—negotiations which probably would have ended in a diplomatic break and possibly, war—every business man, banker, government official, farmer, in fact, every citizen has heaved a sigh of relief and turned his face to view with the utmost confidence the approaching wave of prosperity that is being augmented on every side by highly favorable signs and reports from every section.

With the announcement of the sinking of the "Arabic" by a German submarine, resulting in the loss of American lives, there occurred an abrupt decline in prices in Wall street. However, this depression in securities was short-lived, and long before the Kaiser's friendly attitude toward this country became a certainty, a renewal of active buying on the stock market commenced, with the result that in most cases previous losses have been regained, and even new high records for quotations have been established. With this factor of uncertainty now eliminated, it is mighty hard for the pessimist to find a doubt upon which to harp.

Continued and persistent reports indicate a crop that will pass all previous records for magnitude. A billion bushels of wheat will be harvested for the first time in the history of the country, a total yield of 600,000,000 bushels more than last year for the five leading grain crops of the country, and a large reduction in the cotton acreage—a very favorable sign—are shown by the annual crop report compiled by the Continental and Commercial Bank of Chicago and made public on August 31. In spite of the fact that it has not seemed likely the billion bushel mark would be touched by this year's wheat crop, indications now are that this will be so. The report states that the harvest of wheat and oats is completed in over two-thirds of the area, and the final stages of the ripening period have been passed in the northern portion of the country. Only corn remains, subject to about a month of growth. The estimates of the bank's correspondents are based on the harvests completed and under way, together with estimates of probable results of the growing crop based on the present conditions. The wheat crop, however, will not be as good for milling purposes as usual, rainy weather having left an excess of moisture in the grain, and the delay in thrashing added to the lower milling quality. With 420,000,000 bushels of wheat available for export, as indicated by the report above mentioned, this country is practically in position to feed all Europe, if necessary.

Regardless of the gratifying fact that the great Ameri-

SAY I SAW IT IN BRICK AND CLAY RECORD

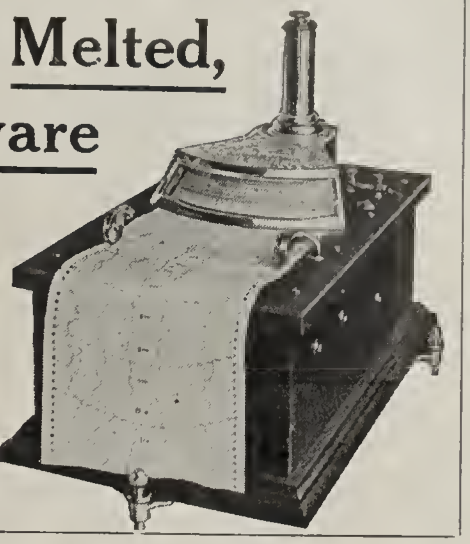
can dollar is by far the most valuable medium of exchange in the world today, conditions in the foreign exchange market are very troublesome, if not serious. The English pound sterling has dropped to the lowest level ever reached in this country, throwing the entire New York market into convulsions during the early part of September. Big bankers, however, are inclined to be calm in the face of this extreme depression in value of all foreign moneys. It has been persistently rumored that England would negotiate a huge loan in this country with which to strengthen its almost shattered credit. In view of the fact that those most closely in touch with the situation are exhibiting no alarm, it is reasonable to assume that there are sound reasons for believing that the British government will soon take steps looking toward a readjustment in the exchange market.

In the meantime, brick on the New York market has been having a somewhat meteoric career. The third week in August was marked as being one of the dullest weeks in building material lines for some time. The feature of the week was the breaking of the strike among the employes of the brickyards at Haverstraw, N. Y., after they had remained out of work for eight weeks. Although the price of other commodities remained about the same, brick advanced from $5.75 to $6.00 toward the close of the week. The opening of the following week saw this price still in effect until August 27, when the price of Hudson River common-brick soared to $7.00 a thousand. However, the next day this price dropped $1.00, being forced down by a steady selling pressure. From that date until the close of August, the $6.00 price remained in effect, the brick market showing a good tone, and the building material trade in general showing a more optimistic feeling than for some weeks past.

While it is too early as yet to know just what turn August building operations will take, as compared with the preceding month, or the same period last year, reports from scattered sections indicate a renewed activity coincident with the usual fall rush to get new operations under way or well toward completion before the advent of winter. Philadelphia continues to show encouraging prospects in the building line, a considerable amount of estimating on new work being done, improving sentiment in the building material markets.

In Baltimore there has been a considerable revival in building and real estate, many deals having been reported, including large contracts for the construction of factories and warehouses. Building activities have assumed the fall rush in Chicago, a corresponding pressure being felt in demands for materials. During the last week in August new permits in that city were placed at $2,456,000 in value, as compared with $1,463,800 for the preceding week, and $1,220,000 in 1914. Dayton (Ohio) building conditions have improved materially, while the report even comes from St. Joseph, Mo., that prospects for building operations are favorable. In many parts of the Middle West and the West recent heavy rains have delayed building somewhat. Operations in many cities, however, still show little signs of activity, the demand for building materials in Cleveland, notably, being at a very low ebb.

Business in general is becoming more active and the demand in many branches is well ahead of that of a year ago. The effect of large foreign war orders is slowly permeating conditions in this country, the influence getting beyond the special steel activities and into industries allied only remotely with the finished product. Trade is improving in the Middle West, according to the federal

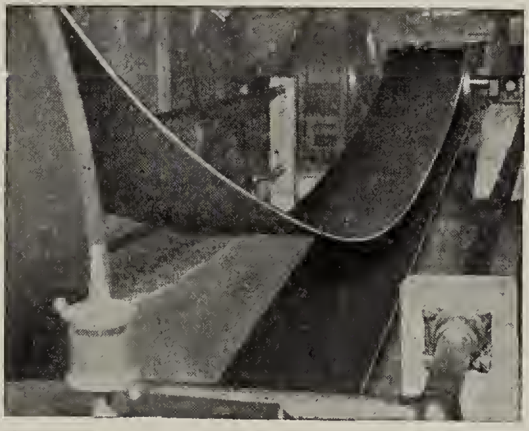


One Kiln of Melted, burned-up ware

The loss on just one will more than pay for a Price Pyrometer installations—and after it is in you are forever insured against melted or underburned ware.

The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

A Spark—
from a Train
In the long hours of the quiet night
THINGS will HAPPEN—
In your plant
A Hardinge Watchman's Clock
protects—prevents—it saves
Complete system is only $36.00
Our booklet tells.
Hardinge Bros., Inc.
1760 Berteau Ave. Chicago
Approved and labeled by National Board of Fire Underwriters



Insist Upon Getting All Available Power and at Low Up-Keep

If you do, Cling-Surface would give the same valuable aid to you that it has to C. L. Hogan, Richard Carval Co., New York, one of whose belts is shown. He says:
"I have found in six years' experience that Cling-Surface treated belts after years of continuous operation are as good or better than when new."
The treatment is simple and the results quick.

CLING-SURFACE CO 1029 Niagara Street BUFFALO N Y
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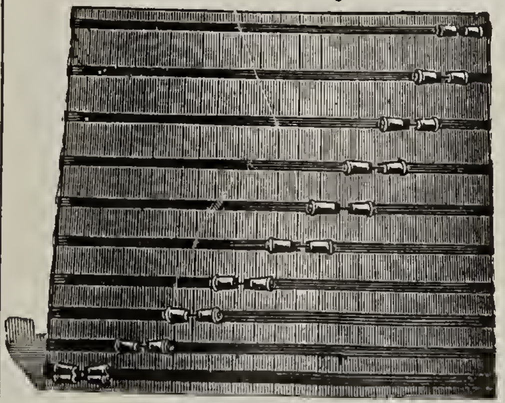

"The Tanks with a Reputation"

The construction of
Caldwell Cypress Tank
is based upon scientific and conservative engineering principles that eliminate every point of weakness found in ordinary tanks.
The proven durability of the tank material, the scientific hooping and the expert construction, all combine to make the Caldwell Tank wear, last and give satisfaction. Get our illustrated catalogue before buying.

W. E. CALDWELL CO., (Incorporated), LOUISVILLE, KY.
Tanks { Steel-Wood / Galvanized } Towers
Wind Mills - Pumps - Gas Engines

SAY I SAW IT IN BRICK AND CLAY RECORD

Pyrometer Caution

Be careful in the selection of a pyrometer. There are startling reasons why. Read them in our "Pyrometer Facts."

The Stupakoff Laboratories
Pittsburgh, Pa.

STRENGTH UNIFORMITY DURABILITY
REG. U.S. PAT. OFF.

The Webb Wire Works
New Brunswick, N. J.

Swedish Steel Cutting Wire
in coils or looped lengths

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in coils or looped lengths

TWISTED WRAPPED WIRES SOLDERED

Davenport Locomotive Works,
Davenport, Iowa

PERFORATED METAL SCREENS

As required for BRICK MAKERS USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.

New York Office
Room 1023 Cortlandt Building

reserve bulletin for September, just issued, much of the improvement in the manufacturing industries being due to abnormal war demands.

At a recent informal dinner given by the Chicago Clearing House Association to visiting bankers who were on their way to the annual convention of the American Bankers' Association in Seattle, Wash., very significant utterances were made by some proverbial conservative business men.

"We are on the brink of a great prosperity," according to one of the prominent members of the party. "In the West, nothing can stop us from having a bumper corn crop if the frost will only hold off for three weeks. We have already harvested a big crop of small grains.

"In the East the feeling is that we are destined to be the bankers of the world. I should say that we are very prosperous. The American people are proceeding conservatively. The reserve bank system has been a great port of safety."

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

ALABAMA

R. C. Rand of Huntsville, Ala., is considering the starting of a brick plant.

It is rumored that the Decatur (Ala.) Brick and Tile Company will be in the market shortly for machinery with which to construct a new brick plant, destined to be one of the best in the southern country. James D. Scruggs, vice-president and secretary, has offices in Brimingham, Ala.

CALIFORNIA

The Porterville Magnesite Company has filed articles of incorporation at San Francisco.

The clay deposits on the Marks Ranch, near Oroville, Cal., are now being developed on a large scale. About one hundred tons per day are being shipped out.

The city of Stockton, Cal., has placed on sale $230,000 in sewer bonds, and it is expected that work on the new sewer system will begin very soon.

C. G. Berg, of the Port Costa (Cal.) Brick Works, reports business as being satisfactory so far this summer, and takes an optimistic view of the future.

The Richmond (Cal.) plant of the Los Angeles Pressed Brick Company will hereafter be operated under the name of the Richmond Pressed Brick Works.

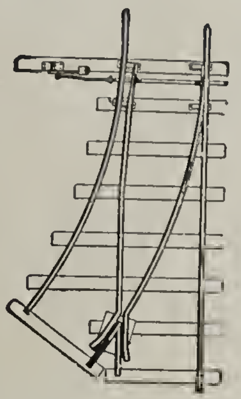
Fred Gunster, a paving brick manufacturer of Birmingham, Ala., was in San Francisco recently visiting the trade and attending the Exposition.

N. Clark and Sons, San Francisco, are making deliveries of terra-cotta for use on two school buildings at Woodland, Cal., and will soon begin shipments on a large terra-cotta contract for a bank at Reno, Nev.

The Steiger Terra Cotta and Pottery Works, San Fran-

We Have the Equipment

Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.



Let Us Quote You on Your Industrial Railway Supplies

Cincinnati Frog & Switch Co., Cincinnati, Ohio

Babbitt Nuggets of "Nugget" Babbitt

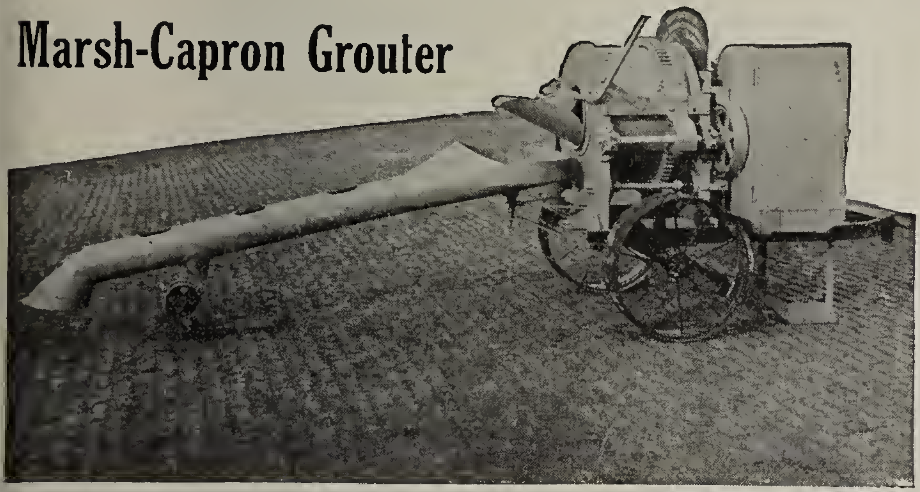
FITS YOUR LADLES

Do you carry a stock?—ready for a new shaft, a worn crusher bearing, a hot box—on engine, shaft or machine.

Nugget Babbitt—it's 15c the pound

The Cleveland Alloys Co.
Cleveland :: Ohio

Marsh-Capron Grouter



Most economical, easiest and most satisfactory grouting is done with this machine. Write for price.

MARSH-CAPRON MFG. CO., 461 Old Colony Bldg., Chicago

Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the

"Carrier" with One Door Lifted.

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

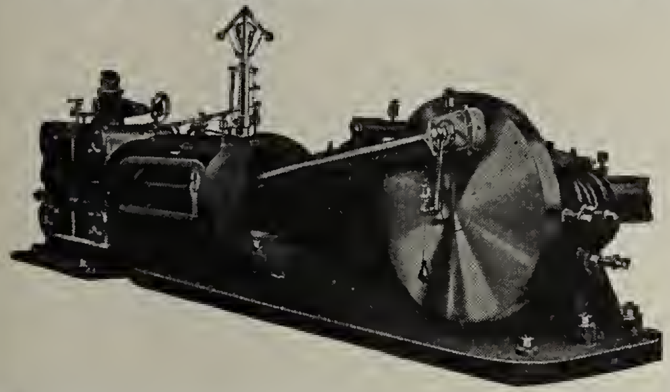
Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co
Indianapolis, Indiana

POWER PLANTS COMPLETE

CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

"To Imitate is to Flatter"

This was never more clearly demonstrated than in the efforts of many clay machinery manufacturers to imitate the **Rust Special Clay Feeder.** But—to be safe and sure buy the original, which cuts out the labor of two men.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Let us send you full particulars.

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices:
Steubenville, Ohio

Mills:
Newark, Ohio

BUCKEYE MEANS BEST

BEST MEANS BUCKEYE

All Sections from 12 lb. to 40 lb. per yard

Write or wire us when in need

No order too large to handle promptly or too small to receive immediate attention

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THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

BRICK BY PARCEL POST

An item of expense that is by no means a small one, is found in the cost of selecting, marking, packing and shipping sample brick. When, as in many instances, they reach their destination in bad order, the whole expense item is a dead loss.

Use the Hinde-Dauch corrugated box and insure the safe receipt of your sample brick. Proven the best in actual test. We also manufacture cartons in various sizes for all purposes.

Let us give you the names of satisfied users. Take their word for it—not ours.

THE HINDE & DAUCH PAPER CO., Sandusky, O.

Tycos PYROMETERS

Practical
—
Dependable
—
Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

Can You Afford a Shovel Shut Down?

A broken chain may tie up the entire plant for hours—for days—

Use Woodhouse Specials "they will not break".

We'll tell you why.

Woodhouse Chain Works
Trenton, N. J.

cisco, is now busier than for some time past, having lately secured many small jobs. One of the largest jobs recently obtained is that for a new school at Auburn, Cal.

Dan Raymond, of the Garden City Pottery Company, San Jose, Cal., manufacturers of flower pots, says that this line of business has been very fair this year, as the summer flower trade has been stimulated by the Exposition, and now the nurseries are making large purchases of pots for their holiday trade.

The San Francisco Board of Supervisors has passed an ordinance providing for the paving with vitrified brick of a fourteen-foot strip along the center of Excelsior Avenue from Vienna to Athens Street. Brick catch basins and vitrified salt glazed culverts are also provided for in the ordinance.

E. T. Mapel, an experienced clay worker, has built a twenty-two-foot kiln at Toland's Landing, on the Sacramento (Cal.) River, and is turning out a good deal of drain tile, which is in demand on the ranches along the river banks. He expects to increase the capacity of the plant and take up the manufacture of pottery.

The United Materials Company, San Francisco, is making deliveries on an order for four million brick for an addition to a big chemical plant in Contra Costa county. Owing, it is believed, to war business, there is considerable activity in improving chemical and powder plants, all of which require a good deal of brick or other clay products.

The California State Supreme Court has affirmed the decision of the Superior Court of Sacramento County in favor of the Silica Brick Company, of North Sacramento, Cal., in its suit against S. W. Winsor. The action was to recover $5,000 originally subscribed by Mr. Winsor for capital stock in the company in 1910. He was at that time one of the directors of the company.

F. W. Gomph, representing the Pacific Freight Traffic Bureau, has filed an application with the California State Railroad Commission asking for authority to put in effect a rule for the safer shipping of brick on flat cars, in order to reduce the percentage of loss. He would have all brick shipped on flat cars loaded in pyramidal form, and protected by boards and shakes.

The Los Angeles Pressed Brick Company, whose products are handled in San Francisco by the United Materials Company, recently made arrangements for the manufacture and sale of "rug" brick in California, and is now engaged in a campaign for the introduction of the new line on the market. The company is starting the improvements which have long been considered at its northern plant at Richmond, Cal., where a spur track connecting with the Santa Fe Railroad was recently completed, giving first-class shipping facilities.

COLORADO

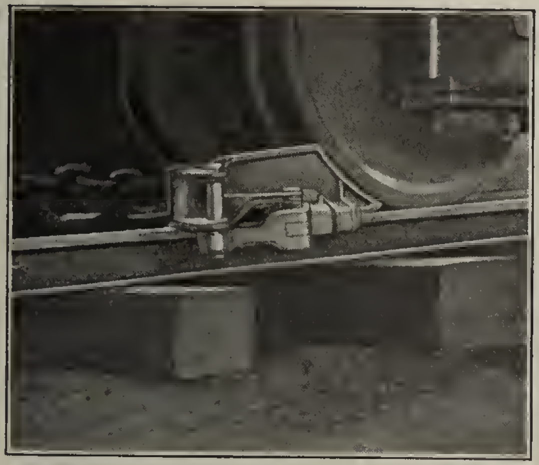
The Colorado and Southern Railroad Company, operating the street car system of Fort Collins, Colo., has notified Mayor Clammer of that city that it will use brick instead of concrete for filling in its portion of the College Avenue pavement. Although this decision on the part of the railway company will result in an expenditure almost twice as large as originally estimated, brick was chosen because it is stated that concrete will not be satisfactory under the heavy strain of the traffic on the rails of the company.

DISTRICT OF COLUMBIA

No reorganization will take place in the Washington, (D. C.) Silicate Brick Company. This was contemplated,

SAY I SAW IT IN BRICK AND CLAY RECORD

Hill's Rail Clamp
FOR STEAM SHOVELS



IT IS AUTOMATIC IN ACTION

Allows free forward movement of the shovel, but locks to prevent backward movement.

No obstruction below the rail head. The clamp passes above bolts and straps at joints, gripping rail head only.

Can be placed or removed in two minutes.

Prices and information complete on application.

C. W. HILL
FOREST CITY, ILLINOIS

Marion
REVOLVING SHOVELS

If it costs you more to run a crew of hand-diggers all day than to run a Marion only *part* of the day—volume of clay handled being the same—it surely would be

Best Economy to Dig "The Marion Way"

as many a brick manufacturer has done with great profit to himself. The facts are all ready in our Booklet 951. Better send for yours today; free—no obligation.

THE MARION STEAM SHOVEL COMPANY
Established 1884 Station A, MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
70 Manufacturers of Excavating Machinery of Every Description

POSTERETTES

200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral—and that moral means better business for the men who make paving-brick.

How about using some of them—now?

Printed in THREE colors

Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

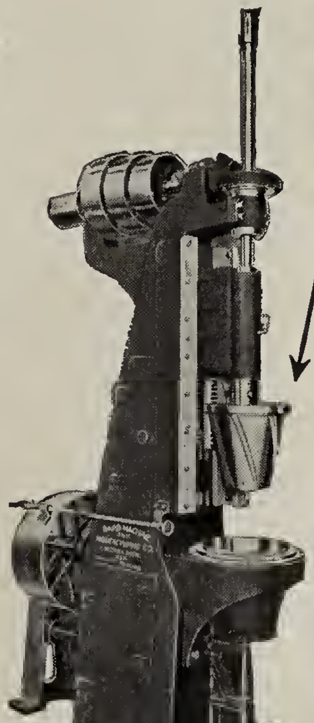
Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO

Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the



Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

FOR SAFETY'S SAKE
USE THIS NEW
DU PONT
Blasting Machine

ELECTRICAL blasting is being adopted more extensively since the perfecting of apparatus and methods. The using of electrical current provides a more positive, stronger, efficient means of detonation than caps and fuse.

Electrical blasting enables the operator to determine the proper time for detonation to insure safety to all employes.

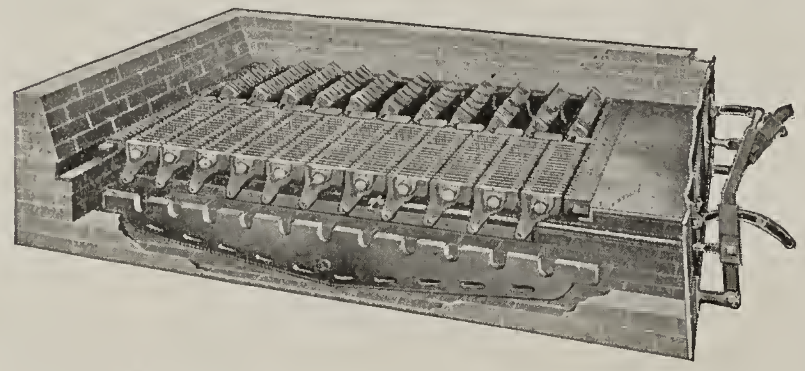
Electrical blasting eliminates hang fires, increases the efficiency of explosives and makes possible the firing of several shots at one operation.

For safety's sake, insist on your blasters using electrical blasting machines.

FOR SPECIAL INFORMATION
ABOUT ELECTRICAL BLASTING
WRITE TO DEPARTMENT 419

DU PONT POWDER CO.
Established 1802
Wilmington, Delaware

THE CANTON GRATE



Shaking and Dumping

The Canton is the grate to keep your fires clean and free burning, with the least time and labor, and with the fire doors shut. Absolutely no loss of fuel while shaking. It is easily installed. Bars may be replaced while furnace is in operation.

Convenience, Economy, Durability

are three important features, and these combined with simplicity of parts, ease of installation and operation, must convince engineers of the unusual merit of Canton Grates.

Our catalog fully illustrates and describes them. Write for it today.

The Canton Grate Company
1706 Woodland Ave., N. W. CANTON, OHIO

but it has been decided to make no change at this time. Business is reported as fair by this company.

The Washington (D. C.) office of the Hydraulic-Press Brick Company has been awarded the contract to furnish 300,000 gray pressed brick for the Wardman Courts. This apartment house, a part of a series, is to cost about $550,000. The same concern furnished the brick for the first two parts of the series.

The equipment of the New Washington (D. C.) Brick Company, which went into the hands of the receivers some time ago, has been overhauled and is now ready for use again. The company expects to resume operations very soon.

The Washington (D. C.) office of the Hydraulic-Press Brick Company reports that it has been awarded the contract for furnishing 200,000 gray rough-texture brick for the new Southern Railway office building. Milburn-Heister Company are the architects of the structure, which will cost about $250,000.

ILLINOIS

With a capital stock of $5,000, the Home Tile Company, Chicago, Ill., has been incorporated by Max M. Drefkoff, Jacob Goldman and G. Nat Reeves.

The International China Company, of Chicago, Ill., has been incorporated to manufacture, import and sell certain grades of chinaware. M. L. Annenberg, Louis H. Rose and Edward L. Polako are the incorporators, the capital stock of the new company being placed at $10,000.

Road commissioners of the district which includes Virginia, Ill., have adopted a resolution providing for the construction of a brick paved roadway abutting the end of the pavement of East Beardstown street in that town and extending east on the state road a distance of about 1,500 feet. The proposed roadway pavement is to be fifteen feet in width, laid with brick on a four-inch concrete base. The resolution provides for the appropriation of $2,000 for the expense of this work, on condition that the owners of property abutting the roadway furnish the sum of $500.

INDIANA

I. G. Poston of the Martinsville (Ind.) Brick Company has retired from active business, having sold his interest to several Martinsville individuals, including his son, Ed. I. Poston, who now becomes president and general manager of the company.

The Colfax (Ind.) Drain Tile Company has resumed operations after being idle since the first of the year. Henry K. Lee, of Crawfordsville, has been hired as manager of the plant and has moved to Colfax to take charge of the work. A force of men has been busy overhauling the machinery and preparing for the opening of the plant.

IOWA

The Farmers' and Merchants' Brick and Tile Company, Marshalltown, Iowa, has recently erected a hollow tile plant which it operates in addition to its dry-press brick plant. The tile plant is efficiently operated, having a capacity of 8,000 pieces a day and requiring a working force of only six men.

The Sioux City (Ia.) Brick and Tile Company is now engaged in supplying brick and hollow tile for a number of new operations. Shipments are now being made of the brick for the I. O. O. F. temple in Sioux Falls and also the face-brick for the new high school building in Cherokee. This company has also received the contract for furnishing the common-brick and hollow tile to be

Save Your Dry Cars

You are using from two hundred to two thousand metal cars in the tunnel dryers. These cars are being bathed constantly in an atmosphere charged with damp, acid gases at high temperature. The result is that the cars deteriorate and

Rust

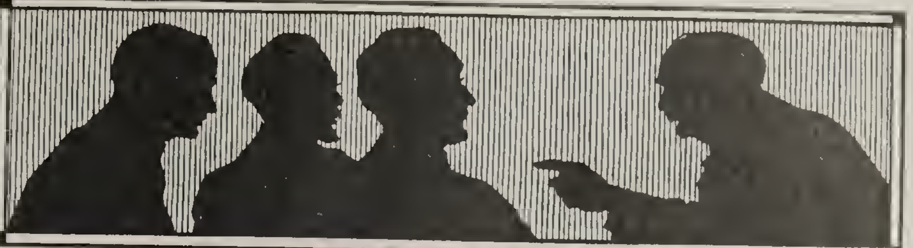
You see it on every car; it's from one-sixteenth to one-eighth of an inch thick. It can be scraped off in showers. It is caused by the acid and moisture in the hot drying gases. This rust makes the decks and cars worthless in a few years.

Carbide Paint

covers up the metal. It prevents rusting and consequent deterioration—because it is acid, gas, heat and moisture proof. It costs but a few cents to paint a car to make the car everlasting. Try it out on your plant. It will save thousands of dollars.

Place your trial order—now.

E. R. STOWELL
ODEN MICH.



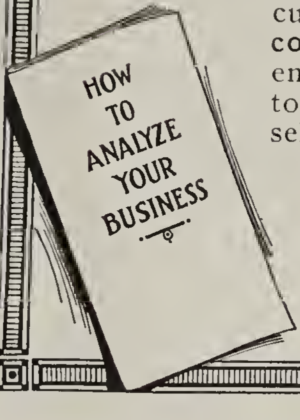
"Gentlemen, How Can We Take This Contract and Make Money Out Of It?"

This situation confronts many manufacturers today. New business can be secured at a figure that was formerly satisfactory, but **increasing costs**—both in the producing and selling end—have made that price almost profit-less.

You want the business and often it cannot be secured at an increased price. Many a manufacturer has filled his plant with unprofitable business just to keep the wheels turning and his men at work.

You can make more money by focusing your attention on **production costs** and the **efficiency** of your present organization, than by attempting to secure business at an increased selling price.

May we tell you how?


HOW TO ANALYZE YOUR BUSINESS

L. V. Estes, Incorporated
Efficiency Engineers
McCormick Building, Chicago

Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives

are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.

A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

Represented by
F. W. Weston, 50 Church Street, New York, N. Y.
Charles Riddell, 625 Railway Exchange, Chicago, Ill.
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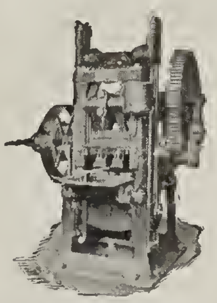
George F. Jones, 407 Travelers Building, Richmond, Va.
A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.

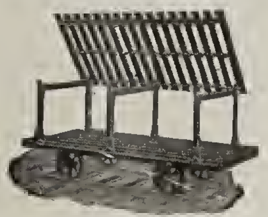
WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

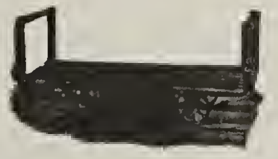
We Manufacture



Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.



Cars of all kinds



Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

Lakewood Engineering Co.
Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD

When You Dump Your Cars—
of Coal
or Sand

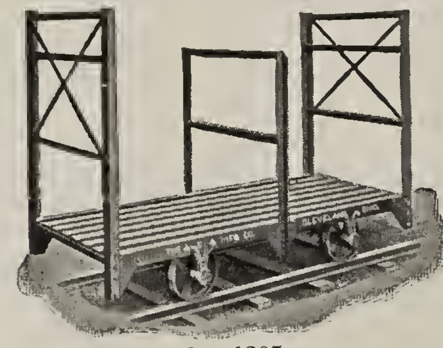
Use a Hessteel Automatic Safety Car Wrench

It minimizes the danger that is usually present when hopper bottom cars are dumped. It opens up the hoppers quickly, positively and safely—for it is a wrench with a long, strong lever arm, and with an automatic safety principle that prevents accidents.

You must have a car wrench. Why not make it an automatic safety wrench.

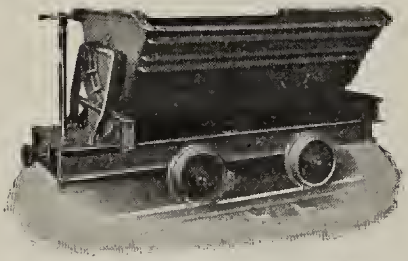
Let us send you particulars.

THE HESS STEEL CO.
Bridgeton New Jersey



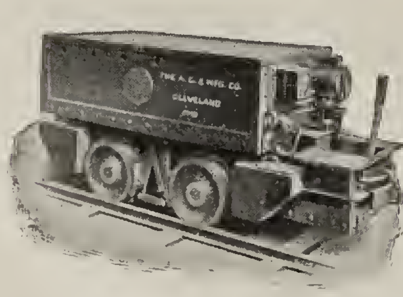
No. 1205
Triple Deck Dryer Car supplied with or without decks of wood or steel.

Reduce Your Handling Costs
by the Purchase of Efficient Equipment



Rocker Side Dump Car
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric
Locomotives



No. 5730
Storage Battery Locomotive. One end operated.

will meet your requirements.

Let us send you catalogue and quote prices.

The Atlas Car & Mfg. Co.
Dept. I
1287 Marquette Road, Cleveland, Ohio

SAY "I SAW IT IN BRICK AND CLAY RECORD"

used in the construction of a public school building in Coleman, S. D.

One of the few clay plants in Iowa using oil in burning its kilns is the Lehigh Sewer Pipe Company, Lehigh, Iowa. Very satisfactory results have been obtained with this fuel in the down-draft kilns at this plant, a temperature of 2,300° F. often being reached in burning the ware, which is made from fire-clay and vitrified.

After suffering heavy losses during the past spring, due to excessive rains and consequent floods, the Tama (Iowa) Brick and Tile Company is again operating its plant at a fairly good capacity. This plant is located in a small valley with hills on one side and a railroad fill on the other. When the heavy rains came, the water collected in this hollow and very nearly inundated the plant. The refuse left had to be cleaned from the tunnels and kiln bottoms and from the plant buildings proper, entailing considerable expense and the loss of spring business.

KANSAS

The M. J. Lee Brick and Tile Company, of Paola, Kas., has been purchased by the Paola Brick and Tile Company, J. W. Jenkins being manager.

Frank Nicholson, of Iola, Kan., is the chief factor in a project to build a $100,000 brick plant near Henryetta, Okla.

KENTUCKY

L. S. Powers is heading a movement to organize a company for the manufacture of sewer-pipe at Hawesville, Ky.

Brickmakers of Louisville are looking forward with expectancy to the contract letting for brick to be used for the new five-story Bankers' Realty Building, to be erected at Fourth and Market streets, in that city.

A. E. Davis, Indiana sales manager for the Western Brick Company, Danville, Ill., was in Louisville recently, where he made his headquarters with the R. B. Tyler Company.

The Hillenbrand Brick Manufacturing Company, Louisville, Ky., which was shut down early in August for an overhauling of the plant, has resumed operations on full time again and is supplying a large number of brick jobs.

Charles H. Spinks, of Newport, Ky., a son of T. J. Spinks, well known as a brick and building material man of that city, was married recently to Miss Mary B. Snodgrass, of the same city, the couple leaving immediately for an automobile tour of Michigan.

The Tyler Building Supply Company, Louisville, Ky., will supply 80,000 light buff face-brick, manufactured by the Hay-Walker Brick Company, of Templeton, Pa., on the new $35,000 apartments to be erected by L. Jacobson in Louisville.

With perhaps half a dozen large building projects under way in Louisville, Ky., local brickmakers are finding conditions better now than for months. These are in addition to a number of smaller projects, residence jobs, etc., which are going forward with a good deal of speed all over the city. Building permits for the month of July showed a gain of $65,000 over the same month last year.

T. Bishop, of the Southern Brick and Tile Company, who has recently completed several large tile drainage jobs in Warren county, Ky., has shipped his ditching machine to the vicinity of Elizabethtown, where he has contracts to fill. These have resulted from the successful operation of pre-

THWING HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Acme Brick Company, Marietta, Ohio.
Adel Clay Products Co., Adel, Iowa.
Armstrong Cork Company, Beaver Falls, Pa.
Baker Clay Company, Grand Ledge, Mich.
Buckeye Firebrick & Clay Co., Scioto Furnace, Ohio.
Cork Brown Lime Company, Oshkosh, Wis.
Darlington Clay Products Co., Darlington, Pa.
Dressler-American Company, New Castle, Pa.
Eureka Brick Company, Richmond, Va.
Ludowici-Celadon Co., New Lexington, Ohio.
Milton Brick Company, Milton, Pa.
Minneapolis Clay Brick Co., Minneapolis, Minn.
Murphysboro Paving Brick Co., Murphysboro, Ill.
Heinz Roofing & Tile Co., Denver, Colo.
Puritan Brick Company, Hamden, Ohio.
Rookwood Pottery, Cincinnati, Ohio.
St. Lawrence Brick Co., La Prairie, Quebec.
Sebring China Pottery Co., Sebring, Ohio.
Straitsville Impervious Brick Co., New Straitsville, O.
Tuttle Brick Company, Middletown, Conn.
Upper Sandusky Tile Works, Upper Sandusky, O.
O. Zimbal Brick Company, Sheboygan, Wis.

Twenty-two New Users of THWING PYROMETERS
during the past twelve months is not a bad showing while business was so dull.

Others are on the way

THWING INSTRUMENT COMPANY
437 North Fifth Street PHILADELPHIA

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the **dependable brand.**

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York

Chicago, Ill. East Liverpool, O. St. Louis, Mo. Kansas City, Mo. New Orleans, La. Philadelphia, Pa. Boston, Mass.

We carry a complete line of high grade chemicals for the clay industry

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.–CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only **high in strength** but **dependably uniform.**

A perfect vitrified paving block of **your manufacture** used with a perfect cement filler of **Lehigh** Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use **Lehigh** Cement than all others combined.

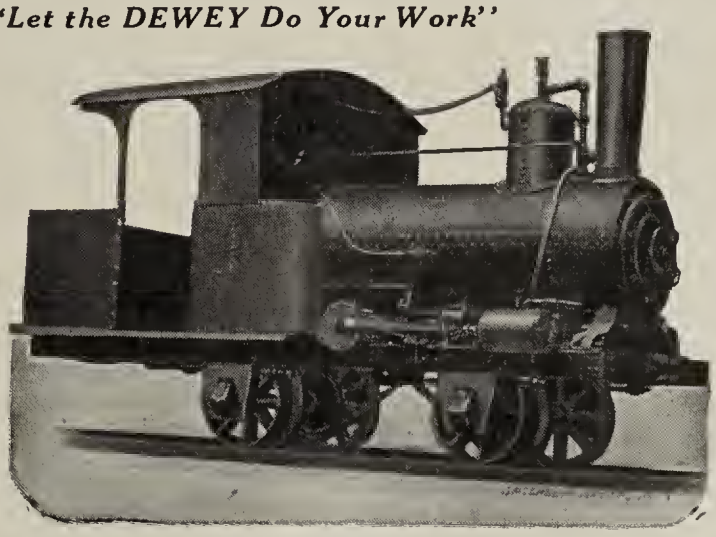
You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH CEMENT

$1200 Buys a Dewey

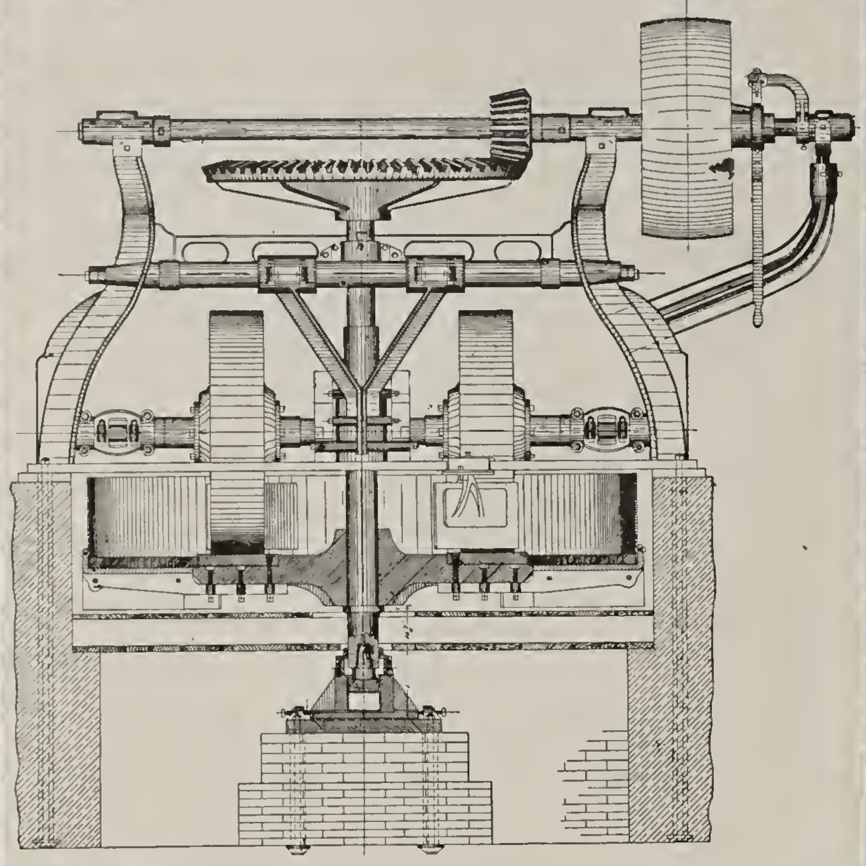
"Let the DEWEY Do Your Work"



And no matter how much more you might pay, you wouldn't get anything better—dollar for dollar. The Dewey is far ahead of any other locomotive on the market. Let us prove it—a card will bring the truth.

DEWEY BROS., Goldsboro, N. C.

The Sensation of the Season



→ Stevenson's ←
Ten-Foot Dry Pan

¶ The announcement made in the May fourth issue of "Brick and Clay Record" has caused a profound impression in the trade. Those who have had a chance to investigate have unanimously agreed that it's the

"Last Word" in Dry Pans

¶ This pan is built for heavy duty and it will give a greater daily capacity than any similar size pan on the market.

¶ We know, because we have built pans for years and we have an experience in this respect that is unexcelled.

¶ Get in touch with us **now** and let us prove that here's a profitable investment for you to make.

¶ **Refer to page 871, May fourth issue "Brick and Clay Record" and read the description of this new ten foot dry pan.**

THE STEVENSON COMPANY
WELLSVILLE, OHIO

¶ Also ask us about our latest Tile Press that makes tile from 3 to 36-inch. It's a wonder.

→ "In the Heart of the Clay Industry" ←

viously installed drainage systems in that locality. The plants of the company are running to capacity.

A. P. McDonald, sales manager for the P. Bannon Pipe Company, Louisville, reports that the company is disposing of a large quantity of tile culvert pipe in connection with extensive road developments which are being carried on in the eastern and other parts of Kentucky. The company is now furnishing a large quantity of tile for use in road work at Whitley county, Ky., and reports that a number of the county engineers are favoring the tile culvert. It looks as if this business will be good during the next year or two.

MASSACHUSETTS

The Bay State Brick Company, Springfield, Mass., has been sold by W. D. McKenzie and Clinton E. Bell to Emerson G. Gaylord and Frank C. Kendall, of Chicopee. The property consists of about five and one-half acres of clay land, together with brickmaking machinery and tools.

MICHIGAN

The Fairview Brick Company, of Detroit, has completely rebuilt its plant which was partially destroyed by fire some months ago.

W. L. Bailey now maintains an office at 830 Penobscot building, Detroit, acting as Wisconsin representative for the Whitacre Fireproofing Co., manufacturers of hollow tile and hollow brick.

R. L. Stoddard, resident manager of the National Fire Proofing Company, with offices in the Penobscot building, Detroit, Mich., reports big business in "Natco" hollow tile.

The Mercier, Bryan and Larkins brick plant in Springwells, near Detroit, is being operated, although brick is not being manufactured on a large scale as yet. It is the purpose of the owners to get the complete plant in working order before operating to capacity.

A new office building, to be of brick, will be erected at the plant of John S. Haggerty, Michigan avenue and the railroad, Detroit. This office will be one story high and will be exclusively for the factory. Mr. Haggerty will continue to have his own office in the Dime Savings Bank building.

The Holton Brick yards in Muskegon, Mich., have been sold by James T. Paisley, of Chicago, to Olaf Nelson, of Chicago. The amount involved is said to have been $10,000. The Holton Brick Company was organized several years ago by Frank A. Alberts, of Muskegon, who retired from active business when the concern was sold later to Mr. Paisley.

H. O. Joseph, secretary and salesmanager of the Grande Brick Company, of Grand Rapids, Mich., reports business to be better than usual for this time of the year. The company has contracts for furnishing brick for the Imperial Furniture company's boiler house and the new high school building at Lowell, Mich. It is also shipping considerable brick to Ludington, Hastings, Reed City and to points outside the state.

According to a decision of the Michigan supreme court, the T. B. Townsend Brick & Contracting Co., which furnished the brick for the East Maumee street pavement of Adrian, Mich., wins its case against the American Bonding company, surety for William F. Bowen. The brick company, by reason of the Supreme Court decision, recovers $1,700 from the bonding company, the price of

SAY I SAW IT IN BRICK AND CLAY RECORD

High Burning Costs

Will you bring them down—down to a figure that means profits — that means that you pay for fewer carloads of coal?

You get better ware, too. It is being done by using

The

Hook System

It should be built into your kilns. It will extract and utilize every possible unit of heat in the coal you burn. It permits you to have perfect heat control. It prevents variations in burns.

It will produce

Low

Burning Costs

It is doing it Elsewhere —
It can do it for you.
Ask for proof.

The Hook Patent Kiln Co.
Main Office, Vigo, Ohio
Canadian Office, 250 Dufferin St., Toronto, Ont.

Belting Service

MOISTURE PROOF, dust proof, acid proof —all but wear proof—do you know Gandy the Original Stitched Cotton Duck Belt.

The thousands and thousands of Gandy Stitched Cotton Duck Belts now in use are your best guarantee that it is WORTH knowing.

It costs only about one-third the price of leather belting and much less than Rubber belting. Yet 37 years of experience in all industries proves that it will do the work of either and *Equally as Well.*

Let us send you samples and full information?

The Gandy Belting Co.
732 W. Pratt Street
Baltimore, Md.

New York Office
36 Warren Street

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Well?

If you were to be assured of a financial success on your plant—

providing you used a different mode and method of burning—

a method guaranteed to burn much less fuel—

a method that lends itself to a perfect control of kiln temperatures—

a system of actual proven success—in other words—

The Underwood Producer Gas Burning System

(Patented)

Would you investigate?

We do assure you of success—we know the system is all and more than we claim for it—the users are more enthusiastic than we—here is what one of them says—

". . . the more we use it the better we like it. It certainly is the only way to burn ware because you have absolute control of the heat and air. It obviates hauling coal around the kilns and carting cinders away. We are getting better results from every burn. . . . We burned last two kilns with 52 tons coal in 73½ hours. Formerly the same quantity required 90 tons coal and 168 hours. We are making rough texture brick and they are beauties."

(Name on request.)

The Manufacturers Equipment Co.

"Everything for the Clayworker"

DAYTON, OHIO

brick furnished by it. The case hinged on a question of law, the bonding company claiming exemption from liability on the ground that the brick company accepted a note from Bowen in payment of the brick—an extension of credit unknown to them as bondsmen.

MISSOURI

A. W. Dixon, of Harris, Mo., will establish a brick plant in Centralia, Mo.

Lincoln Messick, manager of the Missouri Pottery and Manufacturing Company, Kansas City, Mo., reports an especially large trade already opening in flower pots. Last season was so dry in the west and southwest that many people did not trouble to take up flowers. This year, however, has been especially wet, and it is evident that new stocks of pots will be taken on and this ware used more extensively.

NEW YORK

The Metropolitan Sewer Pipe Company, New York, N. Y., has been incorporated with a capital stock of $10,000 by T. J. Byrne, T. J. Byrne, Jr., and F. Byrne, all of New York.

Jesse Dean, Inc., New York, N. Y., has been incorporated with a capital stock of $30,000 to manufacture china, porcelain, pottery and other similar articles. The incorporators are H. Creange, 200 Fifth Avenue, F. P. Abbott, 95 Madison Avenue and H. L. Cross, 154 Nassau Street, New York, N. Y.

The Onondaga Vitrified Brick Company, Warners, N. Y., during the past few months has been supplying a large number of brick for buildings in Syracuse and Central New York. One of the large orders which has made it necessary for this plant to operate to capacity is that for the brick to be used in the new buildings of the Franklin Manufacturing Company at Syracuse. Besides this many other building operations in the surrounding towns and cities have required large quantities of the Warners plant's product, which is made of shale and vitrified.

NORTH CAROLINA

It is reported that the Catawba Falls R. R. will establish a brick plant at Old Fort, N. C.

G. W. Isenhour and Sons, Salisbury, N. C., has placed its plant in full operation following the receipt of an order for one million brick to be used in the construction of a new hosiery mill in Winston-Salem.

The Intermont China Clay Company at Toecane, N. C., has been organized and is developing large china clay deposits at that point. A flume three miles long is being constructed and the capacity of the plant, which will be twelve to fifteen tons a day in the beginning, will later be increased to about twenty-five tons.

OHIO

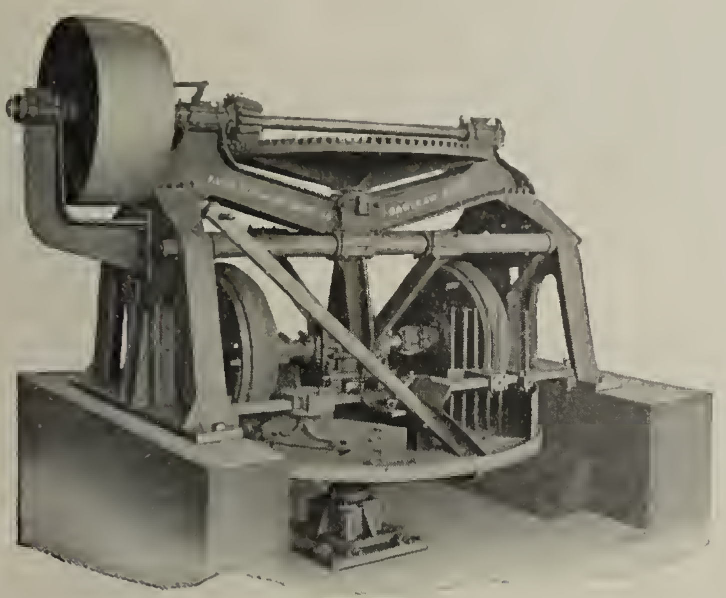
C. A. Bliss has resigned as secretary of the Queisser-Bliss Company, of Cleveland, Ohio, and E. A. Gunn has been elected his successor.

The Enamel Vitrified Brick Company, Nicholas Building, Toledo, Ohio, has plans out for a new plant at Rossford, Ohio. Considerable new machinery will be installed.

A fire at the brick yard of W. F. Stimmel, Kutztown, Pa., operated by Keiser and Miller, of Topton, Pa., caused $1,000 damage in one of the kilns recently.

The plant operated in Cincinnati by the Shorey-Willis Brick and Supply Company, is reported to be running to capacity, with its output of 24,000 a day covered by contract for some time to come. The company reports a slow demand for high-grade face-brick, which makes

SAY I SAW IT IN BRICK AND CLAY RECORD



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

THEW SHOVELS

Facts About the Thew Gasoline Shovel--

Ideal for Digging Clay and Shale

Type 0 Thew Gasoline Shovel— ¾ yard Dipper

NOT AN EXPERIMENT. With the exception of the power equipment and the means of transmitting it, the Thew Gasoline Shovel is exactly like standard Thew Shovels, whose record is substantially established. Power is supplied by a 35 horsepower gasoline engine of standard make.

A ONE MAN SHOVEL. This shovel requires but one operator. The few levers necessary to control the mechanism are within easy reach and the machine can work without interruption, as no time need be taken for firing.

REDUCED OPERATING COST. The gasoline engine uses only two gallons of fuel per hour at a cost of from 20 to 30 cents, and a barrel of gasoline will last 3 days.

WATER SUPPLY. A small supply of water is needed only to cool the gasoline engine and when the water tank is filled up, it will last for a week or longer. A non-freezing mixture does away with the danger of freezing in winter.

BOILER TROUBLES AVOIDED. The gasoline engine takes the place of the boiler, and, therefore, no state or local boiler requirements are to be conformed to, and no boiler insurance or other boiler expense must be encountered. All boiler troubles and expense for maintenance are done away with.

These and other advantages are explained in special gasoline shovel circular—a copy of which will be sent on request.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send me circular of gasoline shovel with explanation of its advantage in clay pits as advertised in "Brick and Clay Record."

Name ________________

Address ________________

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Every plant is "tied to its 'conveyors'. Well! I'm tied to Goodrich because its the belt that keeps my conveyors on the job all the time.
-Supt. Wise

The average plant needs uninterrupted service from its conveyors. They are its arteries —along which flow the materials used in its business life.

Tie up to this fact: We have studied out *your* conveying problem. Our engineers are ready to walk into your plant, equip you with belt or belts especially designed to meet your industrial conditions. Then goodbye breakdowns, delays, spillage, stretching, shrinkage, lost tonnage.

Goodrich
LONGLIFE and MAXECON
CONVEYOR BELTS

are backed by our forty-five years' experience combining fabric and rubber. They are made in the largest rubber plant in the world. Our success is due largely to "Goodrich Service" —just the sort of service we are now offering to *you* and we firmly believe it will be to your financial advantage to know about it. It costs nothing in money or obligation to ***"Get in touch with Goodrich."***

Goodrich Products:

Conveyor Belts	Hose—all kinds
Elevator Belts	Packing
Transmission Belts	Valves, etc.

The B. F. Goodrich Company
Factories: Akron, Ohio
"Get in touch with Goodrich"

the activity in the demand for its common-brick all the more welcome.

The Diamond plant of the American Sewer Pipe Company, near Uhrichsville, Ohio, has resumed operations after an idlessness of six weeks.

The Cincinnati (Ohio) Clay Company has been incorporated by Eugene and T. J. Evans, Sr., T. J. Evans, Jr., S. G. McClave and Paul Reed, with a capital stock of $50,000.

Work on the new large plant of the Peerless Clay Manufacturing Company, Port Homer, Ohio, is progressing, the building having reached a height of four stories. Work on ten forty-foot kilns is also under way. The plant is located on the Cleveland and Pittsburgh Railroad, and will manufacture sewer pipe.

The Harris Brick Company, of which F. Lawson Moores is president and W. W. Coney, secretary and treasurer, has filed amended articles of incorporation increasing its capital stock from $50,000 to $150,000, in order to make extensive improvements at its plant. The headquarters of the company are in Cincinnati, Ohio, the plant being located at Zanesville, Ohio.

The expansion of work in the residence districts of Cincinnati, including the opening up of new sewers, has been responsible for considerable activity in the sewer-pipe business of L. H. McCammon Brothers, a member of the firm stating recently that there has been a better demand for that material than for some time. A number of good-sized contracts for sewers have been let recently, calling for the use of vitrified clay pipe, and the McCammon firm has received a good share of the resulting business.

The showing made by Cincinnati in building operations this year, as indicated by recent reports covering the entire country, is rather gratifying, on the whole, to local brick makers and dealers, in spite of the fact that activity is not all that could be desired. In the Middle West, Cincinnati and Detroit alone have held their own as compared with former years. But when it is considered that the former city has had no great boom in any single industry, as Detroit had, and is going ahead just about as usual, in spite of a dull season, local builders are pretty well satisfied. Indications are that with an open winter, work will continue on a larger scale than ever before, and with financial conditions improved by next spring, as they should be, it seems certain that 1916 will be a record-breaker in Cincinnati.

PENNSYLVANIA

The new Brickett Fuel and Brick Company, Beaver Falls, Pa., has started operations with a number of large orders already on hand. Besides manufacturing brick this company will handle coal.

TENNESSEE

The Piedmont Coal and Coke Company of Oliver Springs, Tenn., is about to develop some large clay deposits which, it is claimed, are very valuable.

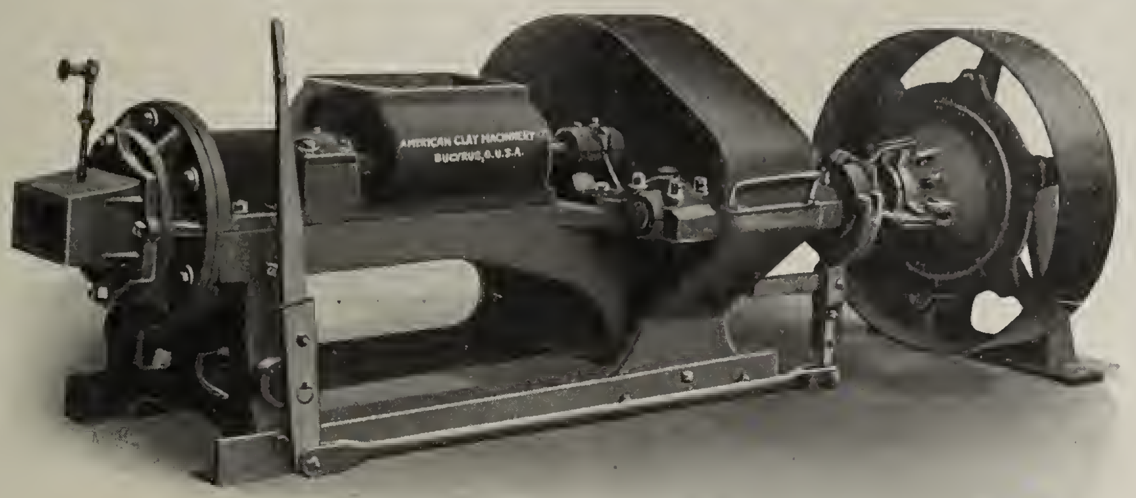
T. Bransford and Sons of Union City, Tenn., will remodel their plant and put in new machinery as well as adding a new kiln. This concern is contemplating the installation of a complete dryer system.

WASHINGTON

With a capital stock of $150,000, the Union Brick & Tile Co., of Washington, has been incorporated at Seattle, Wash., by C. P. McCormick, James A. Murphy, Jay H. Kugler, J. E. Page, H. H. Hillman and George H. Doerr.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

The AMERICAN CLAY MACHINERY COMPANY
The Haigh Continuous Kiln
BUCYRUS OHIO
BUILT RIGHT RUN RIGHT



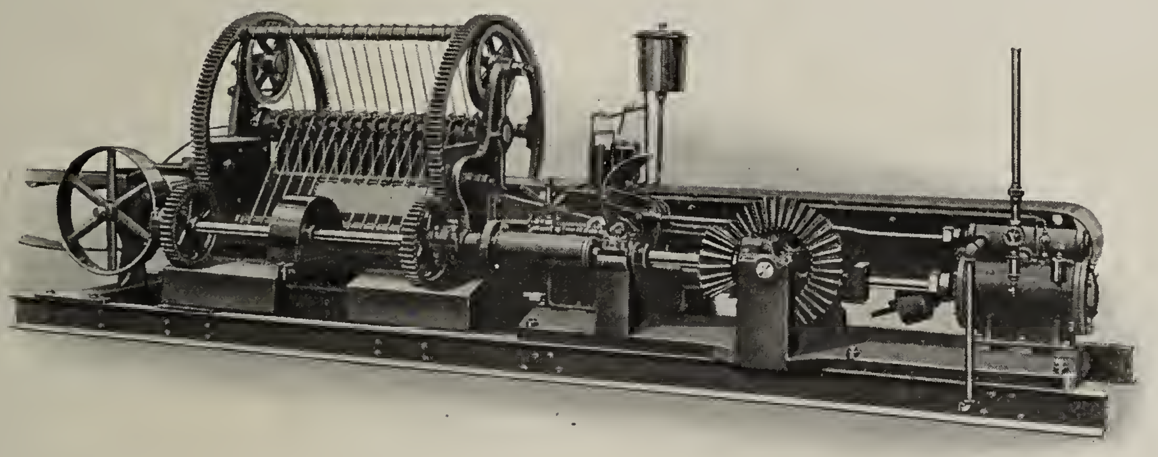
American No. 328 Auger Machine

This machine is designed for the manufacture of building brick and drain tile, also hollow building blocks 4 inches by 5 inches and 5 inches by 8 inches. Not recommended for drain tile larger than 12 inches.

Rated Capacity Per Hour

Building Brick	1,000 to 2,000 per hour
Drain Tile, 4 in. diameter	1,000 to 1,500 per hour
Drain Tile, 6 in. diameter	700 to 1,000 per hour
Drain Tile, 8 in. diameter	500 to 700 per hour
Hollow Building Blocks	5 to 7 tons per hour

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.



American No. 300 Rotary Automatic Cutter

A cutter of quality, strongly built, accurate in operation. It is driven with an easy, steady, positive movement. Get complete description.

The American Clay Machinery Company

Bucyrus, Ohio

We Solicit the Large or Small Wants of Every Clayworker.

THE AMERICAN CLAY BUILT RIGHT RUN RIGHT MACHINERY COMPANY

SAY I SAW IT IN BRICK AND CLAY RECORD

THE BUYERS' DIRECTORY
Of Clay Products Machinery Manufacturers

Analysts and Chemists, Clay.
Ceramic Sup. & Cons. Co.
Deavitt, H. M.

Aerial Tramways.
Broderick & Bascom Rope Co.

Babbitt Metal.
Cleveland Alloys Co.
Fate, J. D. Co.
Gerlock, H. W.

Barrows and Trucks.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Chicago Brick Machy. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Fdry. Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Weller Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belts.
American Clay Machy. Co.
Bonnot Co.
Ceramic Sup. & Cons. Co.
Freese & Co., E. M.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Sawyer Belting Co.

Belt Conveyors.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Sup. & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Belt Dressing.
Cling-Surface Co.

Boilers.
(See Engines and Boilers.)

Brick Conveyors.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Link-Belt Co.
Manufacturers Equipment Co.

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.
Wellington Machine Co.

Car Movers.
Marion Mach., Fdry. & S. Co.

Cartons (Mailing).
Hinde & Dauch Paper Co.

Castings.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Gerlock, H. W.
Link-Belt Co.
Manufacturers Equipment Co.

Cement Filler.
Lehigh Portland Cement Co.

Chains (Steam Shovel).
Woodhouse Chain Works.

Clay Feeders and Mixers.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Schaffer Eng. & Equipment Co.
Steele & Sons, J. C.
Stevenson Co.

Clay Gatherers.
Fernholtz Brick Machy. Co.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Clay Steamers.
American Clay Machy. Co.
Schaffer Eng. & Equipment Co.

Clay Technologist.
Deavitt, H. M.

Coloring.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Conveying Machinery.
(See Elevators and Conveyors.)

Counters.
Ceramic Supply & Cons. Co.

Crushers and Pulverizers.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Wellington Machine Co.

Cutters, Automatic Rotary.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

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American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Webb Wire Works.

Dies.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Nuttall Co., R. D.
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American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equip. Co.
Marion M. Fdry. & Sup. Co.

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Dry Kiln Door Carrier Co.

Dryers.
American Clay Machy. Co.
American Process Co.
Bartlett Snow & Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Trautwein Dryer & Eng. Co.
Wellington Machine Co.

Dryers (Sand).
American Process Company.
Ceramic Supply & Cons. Co.
Fate, Co., The J. D.
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Schaffer Eng. & Equip. Co.

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American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Fate, J. D. Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Stevenson Co., The.

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American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.

Dynamos.
General Electric Co.
Westinghouse El. & Mfg. Co.

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Estes. Inc., L. V.

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American Clay Machy. Co.
Link-Belt Co.
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General Electric Co.
Taylor Instrument Companies.

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American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

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American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
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Clearfield Machine Shops.
Fate, J. D. Co.
Freese & Co., E. M.
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Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
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Chambers Bros. Co.
General Electric Co.
Link-Belt Co.
Nuttall Co., R. D.

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American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Wallace Mfg. Co.

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Canton Grate Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, J. D. Co.
Gerlock, H. W.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Mach., Fdry. & S. Co.
Murray Iron Wks. Co.
Smith Co., Claude.

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Stock Xylite Grease & Oil Co., G. B.

Grouter.
Marsh-Capron Mfg. Co.

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Clearfield Machine Shops.
Fate, J. D. Co.

Hoists.
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Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

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American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
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Taylor Instrument Companies.

Industrial Organization.
Estes, Inc., L. V.

Kilns.
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Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Hook Patent Kiln Co.
Manufacturers Equipment Co.
Rodgers Eng. Co., L. E.
Schaffer Eng. & Equip. Co.
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

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Fate, J. D. Co.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

SAY I SAW IT IN BRICK AND CLAY RECORD

Barrett's PAVING PITCH

When the block is worn out the Pitch still clings

WHENEVER an old pitch-filled, block pavement is torn up, the pitch filler will be found clinging to the blocks when they are piled up on the sidewalk.

You can hardly knock it off; in fact, the only way to make the pitch let go is to subject it to such heat that it will melt and flow away.

No matter whether the pitch has been in the pavement five years or thirty years this condition will still be the same. Moreover, after twenty or thirty years the pitch is still chemically and physically good.

If new paving pitch were not so cheap the old pitch in a twenty year old pavement could be melted and scraped from the old block and used over again in a new pavement and put to work for twenty years more.

Good pitch, such as Barrett's Paving Pitch, is absolutely inert to the action of rain and frost and weather. The tendency of pitch to cling firmly to the block is responsible for the fact that Barrett's Paving Pitch maintains a perfect, waterproof seal throughout the pavement, protecting the foundation from water and frost. No matter how the block may contract or expand in varying temperatures, the pitch adapts itself to the varying width of the joint and never lets go of the block.

Every joint is an expansion joint with Paving Pitch and no special expansion joints are needed, consequently a pitch-filled pavement cannot crack or swell up or explode. It will not thrust manholes or curbing out of position in hot weather. It is free from the stresses which characterize a cement-filled pavement at every turn of the street and every intersection.

Booklet free on request. Address our nearest office.

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The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N.B. Halifax, N.S. Sydney, N.S.

TRADE B MARK

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Atlas Car & Mfg. Co.
General Electric Co.
Locomotives (Gasoline).
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Fate, J. D .Co.
Locomotives (Steam).
Davenport Locomo. Works.
Dewey Bros., Inc.
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Stock Xylite Grease & Oil Co., G. B.
Manganese.
Roessler & Hasslacher Chemical Co.
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Ricketson Mineral Paint Wks.
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Bonnot Co.
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Wellington Machine Co.
Mold Sanders.
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Bonnot Co.
Manufacturers Equipment Co.
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Wellington Machine Co.
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General Electric Co.
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Chicago Brick Machy. Co.
Weller Mfg. Co.
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Ricketson Mineral Paint Wks.
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Bonnot Co.
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Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Clearfield Machine Shops.
Jackson & Church.
Manufacturers Equipment Co.
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Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.
Patents.
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Brewer & Co., H.
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Hendrick Mfg. Co.
Poldometers.
Schaffer Eng. & Equip. Co.
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Atlas Car & Mfg. Co.
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Lakewood Eng. Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
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Bonnot Co.
Baird Machine & Mfg. Co.
Fate, Co., The J. D.
Powder.
Du Pont Powder Co.
Power Plant Equipment (Complete).
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Bonnot Co.
Jackson & Church Co.
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Murray Iron Wks. Co.
Rodgers Eng. Co., L. E.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.
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Baird Machine & Mfg. Co.
Link-Belt Co.
Pug Mills.
American Clay Machy. Co.
Bonnot Co .
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Steele & Sons. J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Wellington Machine Co.
Pulverizers.
(See Crushers.)
Pyrometers.
Brown Instrument Co.
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Engelhard, Chas.
Price Electric Co.
Stupakoff Laboratories.
Taylor Instrument Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.
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Hill, C. W.
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Atlas Car & Mfg. Co.
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Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Engineering Co.
Rattler.
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Bonnot Co.
Ceramic Supply & Cons. Co.
Freese & Co., E. M.
Hetherington & Berner
Manufacturers Equipment Co.
Recording Gages.
Brown Instrument Co.
Ceramic Sup. & Cons. Co.
Price Electric Co.
Taylor Instrument Companies.
Represses.
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Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Steele & Sons, J. C.
Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Rope Preservative.
Cling-Surface Co.
Roofing Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.
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American Clay Machy. Co.
American Process Co.
Bonnot Co.
Fate Co., The J. D.
Jackson & Church Co.
Schaffer Eng. & Equip. Co.
Sand Lime Brick Machinery.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Scrapers, Plows and Clay Gatherers.
Schofield-Burkett Cons. Co.
Screens (Clay and Cement).
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chase Fdry. & Mfg. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link-Belt Co.
Schofield-Burkett Cons. Co.
Stevenson Co., The.
Weller Mfg. Co.
Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Stevenson Co.
Silent Chain Drives.
Link-Belt Co.
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Bartlett & Snow Co., C. O.
Bonnot Co.
Chambers Bros. Co.
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Wellington Machine Co.
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Schaffer Eng. & Eq. Co.
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Steam Shovels.
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Marion Steam Shovel Co.
Thew Auto Shovel Co.
Stiff Mud Brick Machines.
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Bonnot Co.
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Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Stevenson Co., The.
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Wellington Machine Co.
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Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Stevenson Co., The.
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Engelhard, Chas.
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American Clay Machy. Co.
Bonnot Co.
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Chambers Bros. Co.
Chicago Brick Machy. Co.
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Manufacturers Equipment Co.
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Read the Letters

that users write, saying: "The Standard Drier is doing MORE than you claim." Then you'll begin to see why we can afford to make our guaranty as strong as we do.

Write for the catalog and list of users, in which you'll find letters like that from many brick plants where The Standard Drying System has been "making good" year after year.

Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

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8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

Twenty to Forty Per Cent Saved in Power

YOUR own Mechanical Engineer will tell you that Cast Tooth Gears waste in power more than ten times their first cost, while the efficiency of Machine Cut Spur Gears is 95 to 98%.

Send for the Proof—Bulletin 19.
Prove it yourself by Nuttall Cut Gears.

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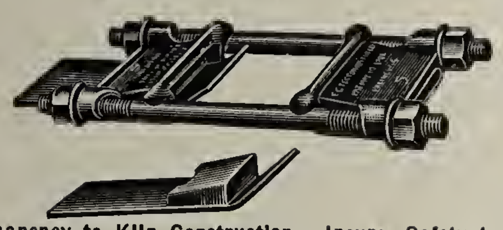
Tecktonius Kiln Band Fastener



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Write for
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Round Kiln

THE STANDARD RATTLER FOR THE TESTING OF PAVING BRICK

As we now build this machine it embodies all of the

LATEST IMPROVEMENTS

and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

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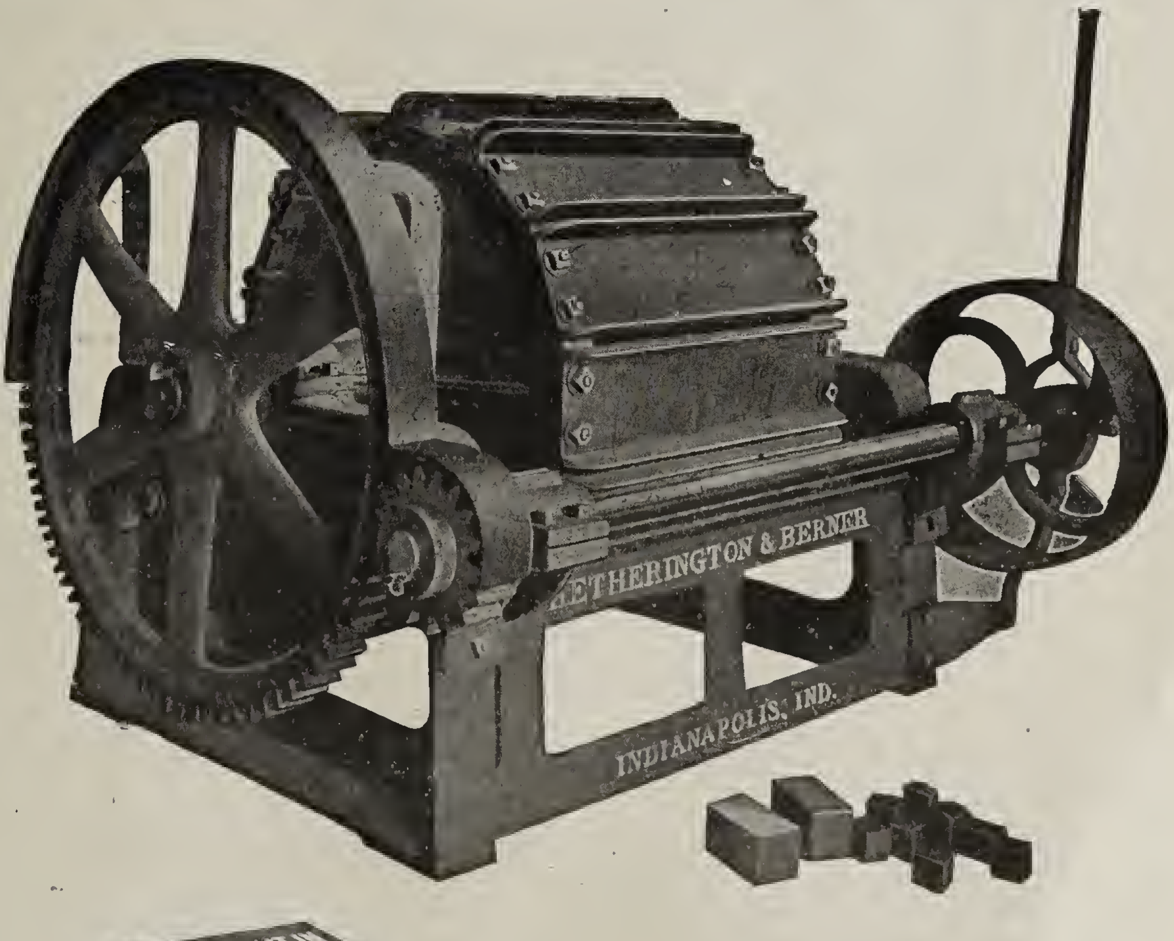

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With patented flexible and
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The *Best Equipment* is the Equipment
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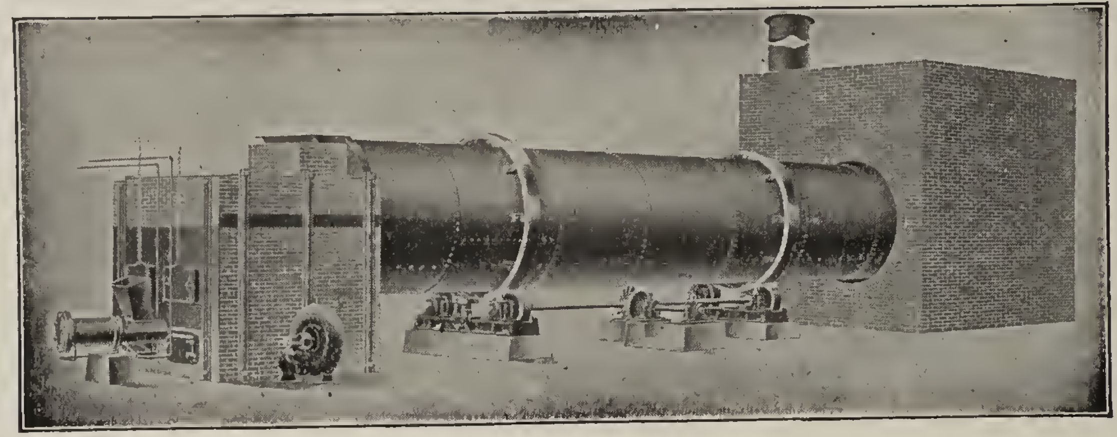
The Chase Fdry. & Mfg. Company
Columbus, Ohio



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DRY YOUR CLAY
AT LOW COST

YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
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Style No. 12

A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 - 500 - 1000	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 - 500 - 1000 -	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 - 500 1000	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

SAY I SAW IT IN BRICK AND CLAY RECORD

DOES IT PAY TO HAUL DEAD LOAD?

Although clearly set forth in Bulletin B, we find that the following point needs the emphasis of a special advertisement.

In the old type of tramway with underhung buckets the dead weight of the buckets alone is usually about equal to the live weight transported. But there are as many buckets returning empty as are going out loaded; hence there is twice as much dead weight being moved at any moment **in the cars alone,** exclusive of hauling cable, as there is useful live weight. Each Lawson car, on the other hand, will transport a live load about six times its own dead weight. Allowing for the empties returning, this means that there is three times as much live weight moving at any moment as there is dead weight to carry it.

What We Do It With

Put in another form, this means that in the bucket tramways the dead load is **double the live load,** and in the Lawson tramway is **one-half the live load**—a ratio in favor of the Lawson transportation of 4 to 1. Moreover, this dead load, like "the poor, we have always with us," whether the tramway is running to capacity or not.

This is a bad matter, but worse remains, since the weight of the haul rope itself is usually twice as great for a bucket tramway as for the Lawson Tramway—and this again is non-paying dead load. All the above bears directly on the earning capacity. An amplification of this subject can be found in our Bulletin B under the heading of POWER REQUIRED.

Respectfully submitted,

AMBURSEN COMPANY (Tramway Department) **61 Broadway, New York**

Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

HERAEUS Le Chatelier PYROMETER

"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular co-ordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermo-couples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

We Supply Pyrometer Installations

"MADE FOR YOU" not "MADE TO DO"

Let Us Figure on Your Requirements

CHARLES ENGELHARD 30 Church Street
NEW YORK

SAY I SAW IT IN BRICK AND CLAY RECORD

Three Hundred Cubic Yards of Tough Clay in One Day

That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will **dig** and **deliver**—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.

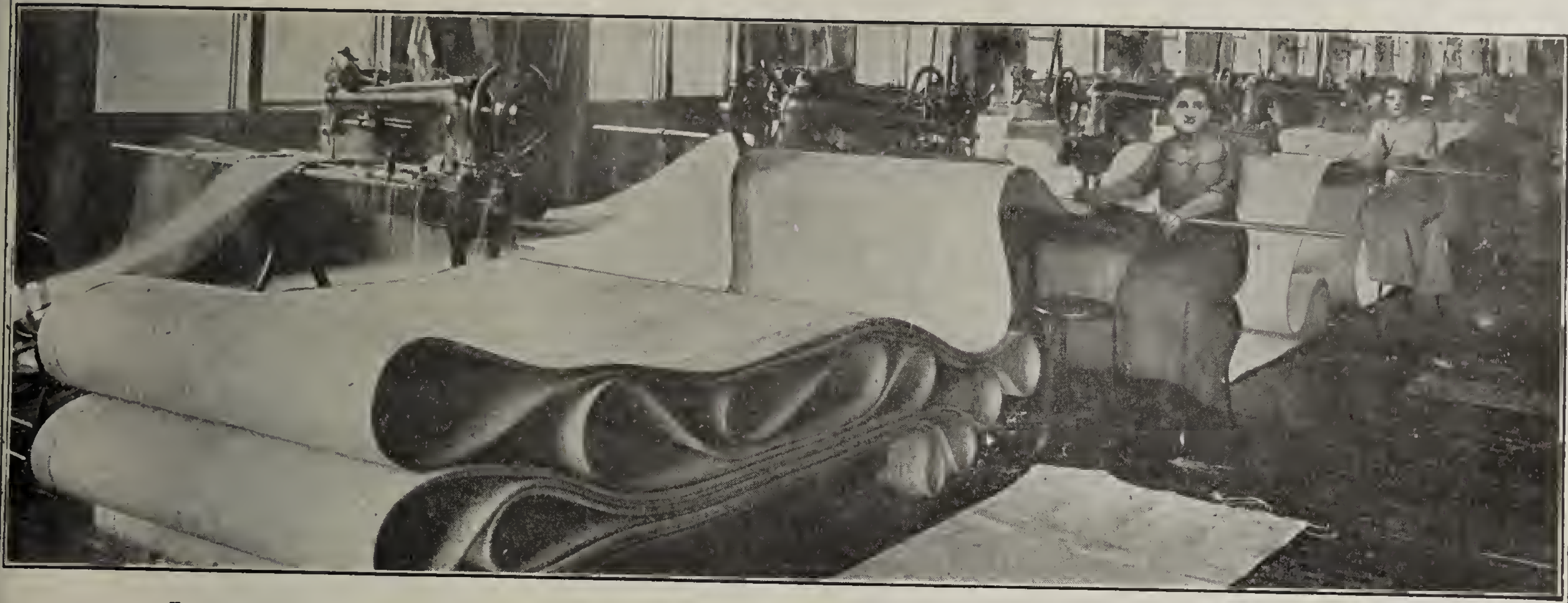
Get Rid of that Old Machinery!

It is idle capital where it stands and the longer it remains there, the less valuable it becomes.

Turn it into real money, while the turning is good. Write up that little ad TODAY and tell us to put it in our classified columns NEXT ISSUE.

Brick and Clay Record **Chicago**

Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wood Moulds
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

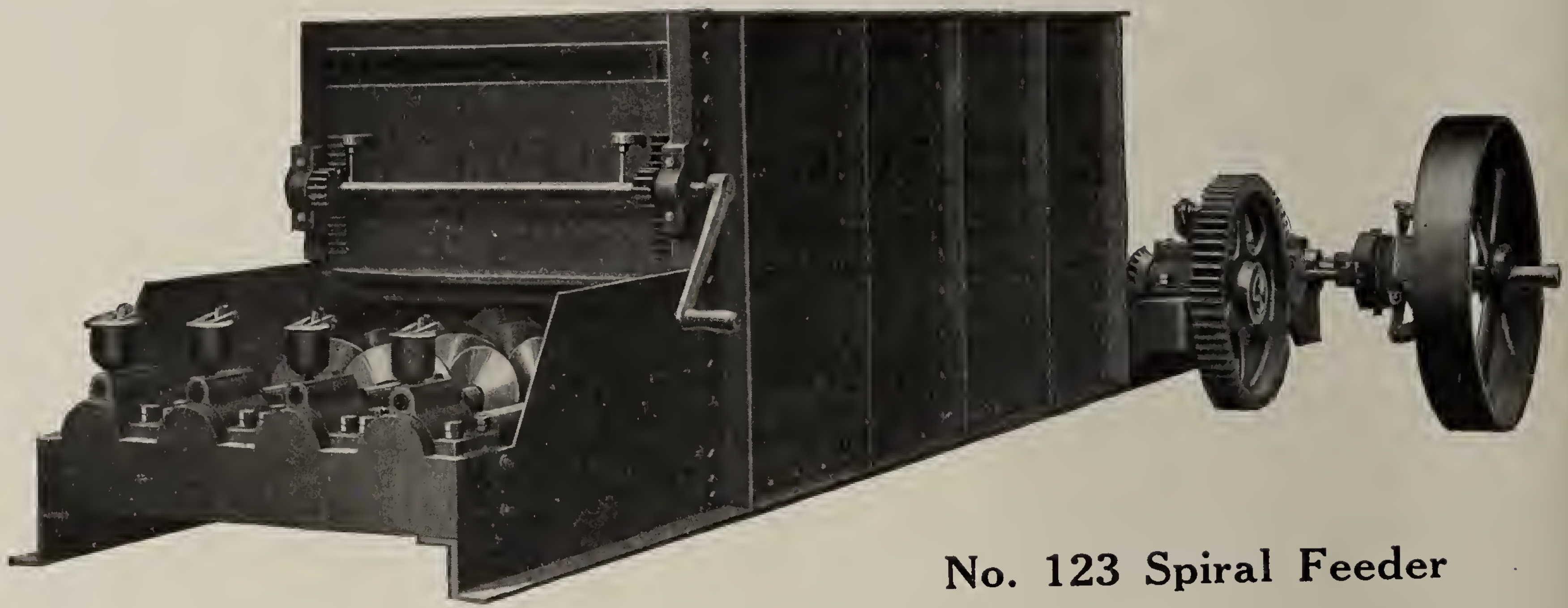
Catalogs Upon Request

CHICAGO BRICK MACHINERY CO.
20 W. Jackson Boulevard **CHICAGO, ILL.**

SAY "I SAW IT IN" BRICK AND CLAY RECORD

IF MARKED **BREWER** IT'S GOOD

Compare the specifications of this Spiral Feeder with those of any other and you will quickly see why it is better. Take these items for example. Weight, 5,700 lbs. Spiral shafts 3 in. dia. Intermediate shaft 3 in. dia. Pulley shaft 2½ in. dia. Compare weights and specifications when you compare prices.



No. 123 Spiral Feeder

All Brewer Machines are rigid and heavy. Sometimes they may *seem* higher in price, but if you will look into their construction you will easily see that they represent *greater value* for the price than any other line.

Ask For Catalog

H. BREWER & COMPANY

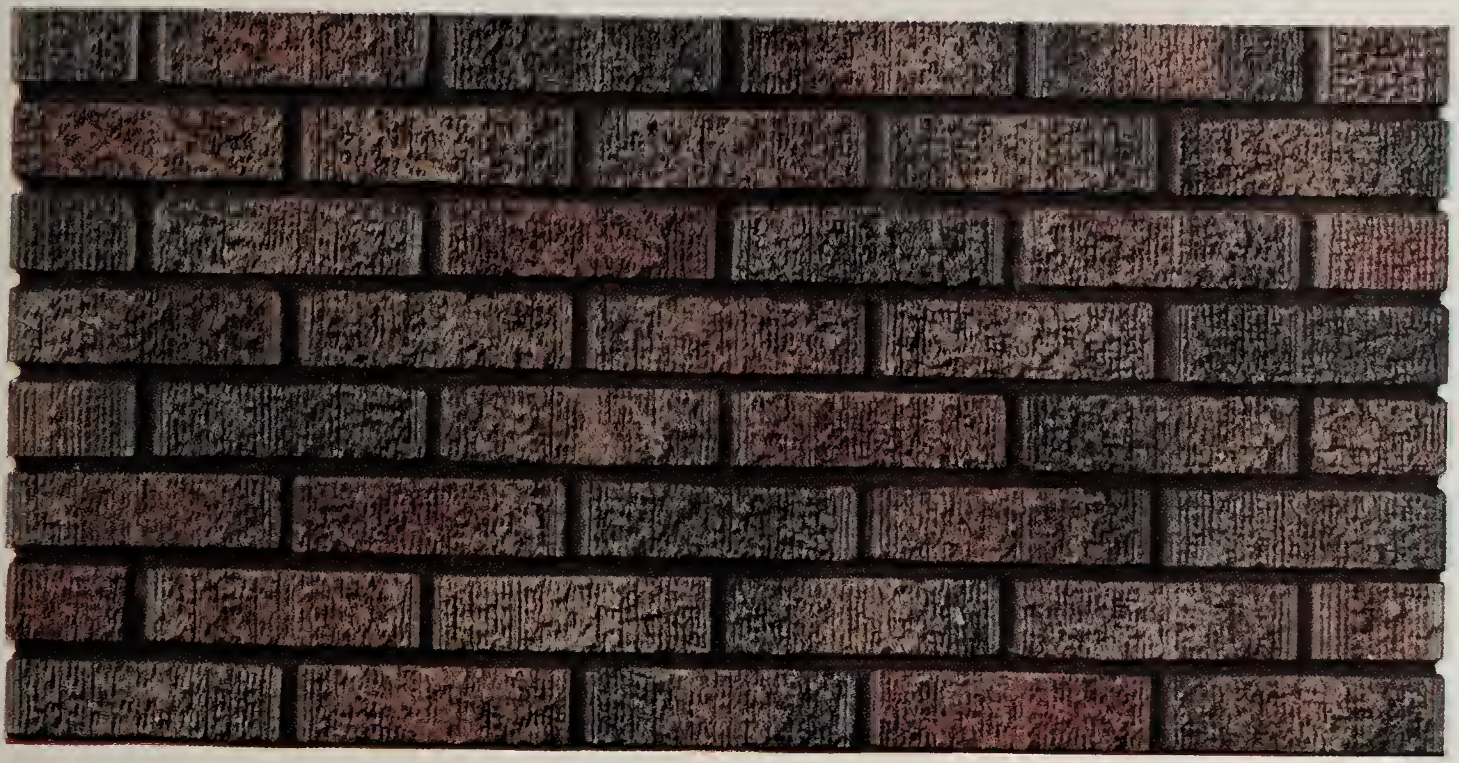
Tecumseh, Michigan

Alliance Rug Brick

MANUFACTURED BY

THE ALLIANCE BRICK CO.

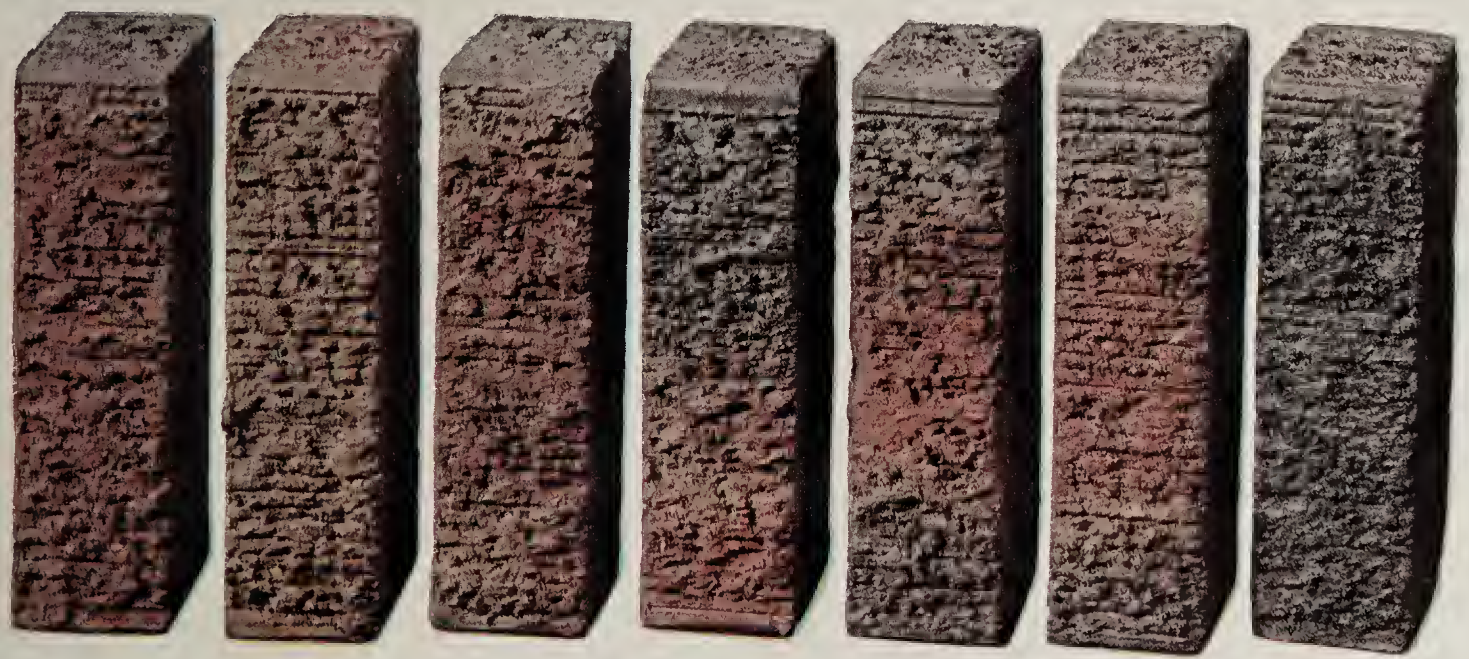
ALLIANCE, OHIO



Alliance Multi-Color Rug Brick No. 76.

Alliance Rug Brick excel all other brick as to beauty of coloring. The chromatic scale of colors runs through the beautiful Rug-texture faces, most of the individual brick showing on the face of each brick **three** or **four** or **more** of the seven primary colors or their shades---gun-metals, wines, chocolates, browns, ox-blood reds, buff tones and multi-colors.

These brick are made of Ohio shale of the highest grade. They are thoroughly vitrified, permanent in color, standard in size---right in every characteristic.



The Seven Types of Brick in Alliance Multi-Color Rug Brick No. 76.

The seven Brick above illustrated represent the seven distinct types of brick composing the panel above. Study these two illustrations---they tell of wonderful possibilities for the architect and builder. The dark wine or gun-metal brick at the right of above seven brick is also sold as a straight shade, **Alliance Rug Brick No. 75.**

Mr. Dealer, here is the best on the market. **Alliance Rug Brick** will get you business. If interested, write for samples, prices, etc.

THE ALLIANCE BRICK CO., ALLIANCE, OHIO

This page was printed by The Review Publishing Co., Alliance, Ohio. Work of this character solicited.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

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Metropolitan Paving Brick Co., Canton, O.	5

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Pittsburg Tile Mfg. Co., E. Liverpool, O.	7

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Trade Names Now in Use
on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co.; Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nibatco—North Iowa Brick & Tile Co., Mason City, Iowa.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., Wellsville,O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Twin Tex—Sheldon Brick & Building Supply Co., Urbana-Champaign, Ill.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
Velvet-Nap—W. B. Ferris Brick Co., Columbus, O.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vitrified Velvet—Adel (Ia.) Clay Pro. Co.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.

Fire Brick for all types of kilns.
For burning all kinds Clay Products.

***For* Side Walls**
***For* Crowns**
***For* Fire Arches**
***For* Perforated Bottoms**

Consult us when in market.
We are ready to serve you.

DAVIS FIRE BRICK CO.
OAK HILL, OHIO

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

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General Office, **Connellsville, Pa.**
Sales Office, **Bolivar, Pa.**
J. B. Hammond, Sales Manager

Mexico Brick & Fire Clay Co.
Mexico, Mo.

HIGH GRADE MEXICO FIRE BRICK TRADE MARK

Manufacturers of
High Grade Fire Brick
and Special Fire Clay Shapes

Fire Brick and Floor Tile for Brick and Tile Kilns a Specialty

Established 1856

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High Grade Fire Brick

Our "Henry Maurer" No. 1 quality Fire Brick is recognized throughout the country as a standard article. We make all shapes and sizes for kiln-work and all other requirements. Catalogues on application. We solicit your inquiries.

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Works: Maurer, N. J. (On L. V. R. R. and C. R. R., N. J.)
Philadelphia Office: Pennsylvania Building

We Can Save You Money, Time and Trouble on Fire Brick

BECAUSE OF
Quality, Price and Service

Freight Rates on all R.R.'s in UNITED STATES and CANADA

A Trial Shipment Will Convince You
WRITE US

ALSEY BRICK & TILE COMPANY
ALSEY, ILLINOIS

Southern Fire Brick & Clay Co.

Fire Brick for Kilns.

High grade fire brick, cupola blocks and fire clay.

Write for prices.

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For Lease

Two clay mines sufficiently developed to load two hundred tons per day. Clay twelve feet thick. Two million tons of best block and burley fire clay.

Mines shipping on Pennsylvania Railroad. New York Central Railroad two miles distant. For further particulars, address John Quinn, Houtzdale, Pa.

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Brick and Clay Record
445 Plymouth Court, Chicago, Ill.

AJAX
FIRE BRICK

Two of the many hundred kilns built of these famous brick. Are you using them?
Write for price and catalogue.
Chicago Retort & Fire Brick Co.
208 S. La Salle St., CHICAGO

FIRE BRICK
DOVER FIRE BRICK CO.
Incorporated 1870
—— MANUFACTURERS OF ——
Dover and Buckeye Fire Brick
Unexcelled for Kiln Purposes
509 Cuyahoga Bldg. Cleveland, Ohio

The Evans Clay Manufacturing Co.
Uhrichsville, Ohio

Standard Sewer Pipe
Double Strength Pipe
Wall Coping
Chimney Tops
Building Blocks

Flue Linings
Stove Pipe
Thimbles
Fire Brick
Drain Tile

And other Fire Clay Products

PAVING SIDEWALK
BUILDING FOUNDATION
BRICK AND BLOCK
The Barr Clay Co.
C. C. BARR, Pres.
STREATOR, ILL.

Ironstone Block
"Often Rattled But Never Embarrassed"
Repressed and Dunn Wire-Cut-Lug
Terre Haute Vitrified Brick Co.
Terre Haute, Ind.

St. Louis Vitrified & Fire Brick Co.
Manufacturers of
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AND
FIRE CLAY GOODS of ALL DESCRIPTIONS
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Sterling Brick Company
OLEAN, N. Y.
Manufacturers
OLEAN BLOCK
Dunn-Wire-Cut-Lug
Made from shale
VITRIFIED
Many are not as good,
A few may be as good,
None Are Better

Bessemer Limestone Company

Manufacturers of

Bessemer Block

Repressed and Dunn Wire-Cut-Lug

YOUNGSTOWN, OHIO

The Alliance Clay Product Company

Manufacturers of the Famous

Speedway Block

Dunn Wire-Cut-Lug Brick.
Also High-Grade Building and Face Brick.

ALLIANCE - - - - OHIO

The Danville Brick Company

Manufacturers of

The Unsurpassed Danville Paving Block

DANVILLE, ILL.

LET US QUOTE YOU PRICES

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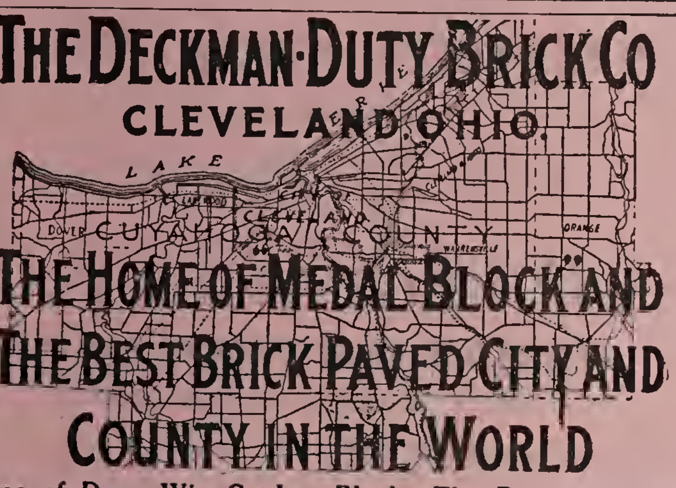
GENERAL OFFICE
GREENSBURG, PA.
WORKS
CONNEAUT, OHIO

Manufacturers of Wire Cut Lug Paving Brick
(DUNN PATENT)

A High Grade Paving Block for City Streets and Main Highways

THE DECKMAN-DUTY BRICK CO
CLEVELAND OHIO.



THE HOME OF MEDAL BLOCK AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

"Licensee of Dunn Wire-Cut-Lug Block. The *Best* and most suitable form of *Paving Block for Road Way Improvements* in use with the *Cement Grout Filler.*"

Hocking Valley Brick Co.

Manufacturers of

Hocking Paving Block

Repressed and Wire-Cut Lugs, Dunn Patent.

Plants **Logan, O.** *General Office* **Columbus, O.**

Output 15,000,000 Annually

Increase the Sale of your Output

Our booklet, "HINTS ON FARM DRAINAGE", if distributed among the farmers in your vicinity will convince them of the practicability of using drain tile. Send for sample copy. :: :: ::

BRICK AND CLAY RECORD, Chicago

"Best Paving Block Made"

Daily Capacity 500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

PURINGTON PAVERS

ARE MADE OF

GALESBURG SHALE

The Purington Paving Brick Co.

GALESBURG, ILL.

SHAWMUT VITRIFIED PAVING BRICK WORKS

SHAWMUT, PA. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay
Paving Bricks and Blocks

Burned in Yates' Patent Kiln

SAMPLES AND PRICES ON APPLICATION

The Carlyle Paving Brick Co.
Manufacturer of

Carlyle Block

Best Testers and Most Durable

Portsmouth, Ohio

The Harris Brick Co.
Manufacturers of

HARRIS PAVERS

Factory:
Zanesville, Ohio

Office:
St. Paul Bldg.
Cincinnati, O.

Alton Brick Company

Makers of High Quality Brick for

Roadways and Permanent Buildings

Repressed and Dunn Wire-Cut-Lug Block.

ALTON, ILLINOIS

Murphysboro Paving Brick Co.
Manufacturers of

THE CELEBRATED EGYPTIAN PAVING BLOCK

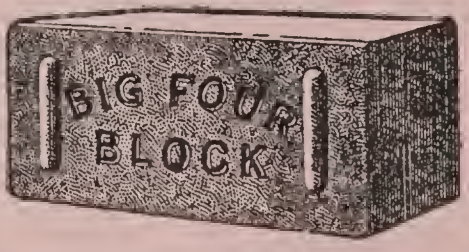
THE BLOCK THAT STANDS THE TEST

Prices and samples furnished upon application

MURPHYSBORO, - ILLINOIS

ALSO DUNN WIRE-CUT-LUG BRICK.

A Uniform Block which makes an Ideal Pavement



THE BIG FOUR CLAY CO.
City National Bank Bldg. Canton, Ohio

L. D. BINYON
President

H. L. MATZ
Vice-President

JAS. A. HOGAN
Sec'y and Treas.

S. S. Kimbell Brick Co.

Facing Brick, Mortar Colors, Raggle Blocks

Main Exhibit and General Offices:
304-306 Chamber of Commerce

Branch Exhibit and Sales Room:
738 South Michigan Boulevard

CHICAGO

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Bradford Pressed Brick Company

Bradford, Pennsylvania

Sole makers of the famous "BRADFORD PRESSED BRICK" (Trade Mark Reg. U. S. Pat. Office) the brick of the DISTINCTIVE RED.
"BRADFORD REDS"—the smooth facing brick. Dry Pressed or Impervious, the former in Standard and Roman sizes. Ornamentals in stock.
"Bradford Ruffs"—a rough textured brick for unusual effects.

Samples sent prepaid on request.

Write for "RED" Catalog.

Hy-tex

The Standard of Quality in Brick

Every texture and color of brick may be found in the Hy-tex line. Send for information to the nearest Branch.

BRANCH OFFICES AND EXHIBIT ROOMS
Baltimore; Chicago; Cleveland; Davenport; Dubois, Pa.; Indianapolis; Kansas City; Minneapolis; New York City; Omaha; Philadelphia; Toledo; Washington, D. C.

HYDRAULIC-PRESS BRICK COMPANY
ST. LOUIS

THE NATIONAL ROOFING TILE CO.
LIMA, OHIO

Manufacturers of the Patent Double
Inter-Locking Roofing Tile
In Two Patterns

Made in Natural Red and Green Glazes

Send Plans for Estimates
Write for Samples and Catalogue

American Clay & Cement Corporation
ROCHESTER, N.Y.

Manufacturers of Clay Products

Distributors Face and Ornamental Brick-Masons' Supplies—All Indestructible Building Materials

ALLIANCE RUG BRICK

Excel all other brick as to texture and beauty of coloring. The chromatic scale of colors runs through the beautiful Rug-texture faces of these brick, most of the brick showing three or four or more of the seven primary colors. One of the most popular sellers in America today.

Mr. Agent, this brick will get you business. Write for samples.

The Alliance Brick Co., Alliance, Ohio

Pittsburg Tile Mfg. Co.

MFRS. OF FLOOR TILE

DOMESTIC QUARRIES

Promenade Tile—
Cove Base, Angles, Caps, all sizes.

EAST LIVERPOOL - OHIO

Modern Brickmaking

By A. B. SEARLE

440 Pages 260 Illustrations $5.00 Post Free

THE NEWEST and BEST OF ALL CLAYWORKING BOOKS prepared by a famous authority in clay products manufacture, qualified to give the trade the latest and best information regarding clayworking processes.

"BRICK AND CLAY RECORD"
445 Plymouth Court, Chicago

TRADE MARK

Belden Brick

CANTON, OHIO

The Best Face Brick Made
Five Factories—All Colors

The Belden Brick Co.
Canton, Ohio

PORTAGE RUFFS

Sold in mixture. Dark reds blending with flashed brown make a wall of rich beauty.

We make common brick and
hollow building tile also.

Agencies Solicited

Prices and Samples—as requested.

THE KELLER BRICK CO.
CUYAHOGA FALLS, O.

The Ironclay
TRADE MARK
FIRE-FLASHED
BRICK
VITREOUS
SELF-CLEANING
It washes
its own face.

The Ironclay Brick

has long been recognized as the standard by which all other Flashed brick are measured. For Composition, Richness of Color and Durability it is without a peer.

Standards, Romans, Normans in seven colors in Stock.

THE IRONCLAY BRICK CO.
COLUMBUS, OHIO

SALT GLAZED BRICK

Beautiful Rich Colors

Buff, Orange and Mahogany

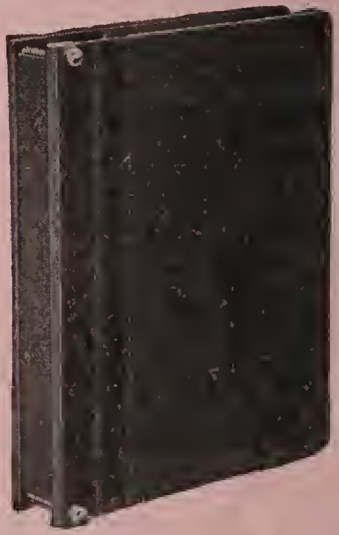
The Stark Brick Co.
CANTON, OHIO

THE GLOBE BRICK COMPANY

Exclusive Manufacturers of

"PORTER NATIONAL"
Fire Clay Paving Blocks

Works at Kenilworth, W. Va.
P. O.—East Liverpool, Ohio



Bind Each Copy of Brick and Clay Record

Do not wish for a back number of "Brick and Clay Record"—have it in your fingers' reach — in a neat, attractive bound volume.

Our Self-Binder Makes it Easy

Stick each issue of the Magazine in the binder as it comes in—a simple twist of the wrist does it—no holes to punch—no springs, locks, clamps, laces, strings—no glueing—a turn of a screw—that's all.

The Self-Binder holds one copy or a dozen—the entire volume, and does it securely, neatly, and opens out flat.

A Special Price to Subscribers

Any new or old subscriber, by paying for his subscription in advance can receive one of these Self-Binders (Price $1.50) by paying 75 cents additional or $2.75 for a year's subscription. To those who have already paid their subscriptions, the subscription will be advanced. To those who only want the binder, the price is $1.50 postpaid.

A copy of the Semi-Annual Index will be given free with each binder.

BRICK AND CLAY RECORD
445 Plymouth Court CHICAGO

"AMERICAN"
ENAMELED BRICK

All Standard Colors and Sizes. Bright, Medium or Matt Finish. Agents in All Principal Cities.

American Enameled Brick & Tile Co.

Manufacturers of Enameled Brick Exclusively.

Factory
South River, N. J.

General Office,
1182 Broadway, N. Y.

You, Too, Can Save Money On Your Drying

The "Wellington" Improved
Steam Pipe Rack Dryer

combines every possible Economy with the highest degree of Efficiency.

It's a Low Pressure Vacuum System—it's **first cost** is **lower** than any other dryer—it can be installed at **less expense,** and operated at a big saving in power and labor.

We will give you facts and figures to **prove it** or you can ask any of the following representative brick companies:

Barkwill Brick Co., Cleveland . . . 120,000 capacity
American Bldg. Bk. C , Cleveland 30,000 capacity
Collingwood Brick Co., Toledo . . 35,000 capacity
Ohio Brick Co., Toledo . . . . 35,000 capacity
Walker & Frank Brick Co., Detroit 35,000 capacity
Farr Brick Co., Cleveland, H plant . 120,000 capacity
Standard Brick Co., Cleveland . . . 60,000 capacity

If They Have Found It An Economy
So Will You—Ask Us More About It

Read this and be Convinced:

Wellington Machine Co.,
Wellington, Ohio.

Have found your Dryer a **grand success.** We are having **no trouble** and are actually drying brick in this Dryer that **does not cost us a cent.** The Wellington Dryer is one of the **best on the market.**

THE OHIO BRICK CO.,
A. R. Kuhlman, Mgr.
Toledo, Ohio.
June 29, 1915.

The Wellington Machine Co.
Wellington, Ohio

Interior View Showing Expansion End, Manifolds and Cable Conveyor.
Our Late Improved Idler Stands are Straight.
Pallets Carried Back Endwise.

SAY I SAW IT IN
BRICK AND CLAY RECORD

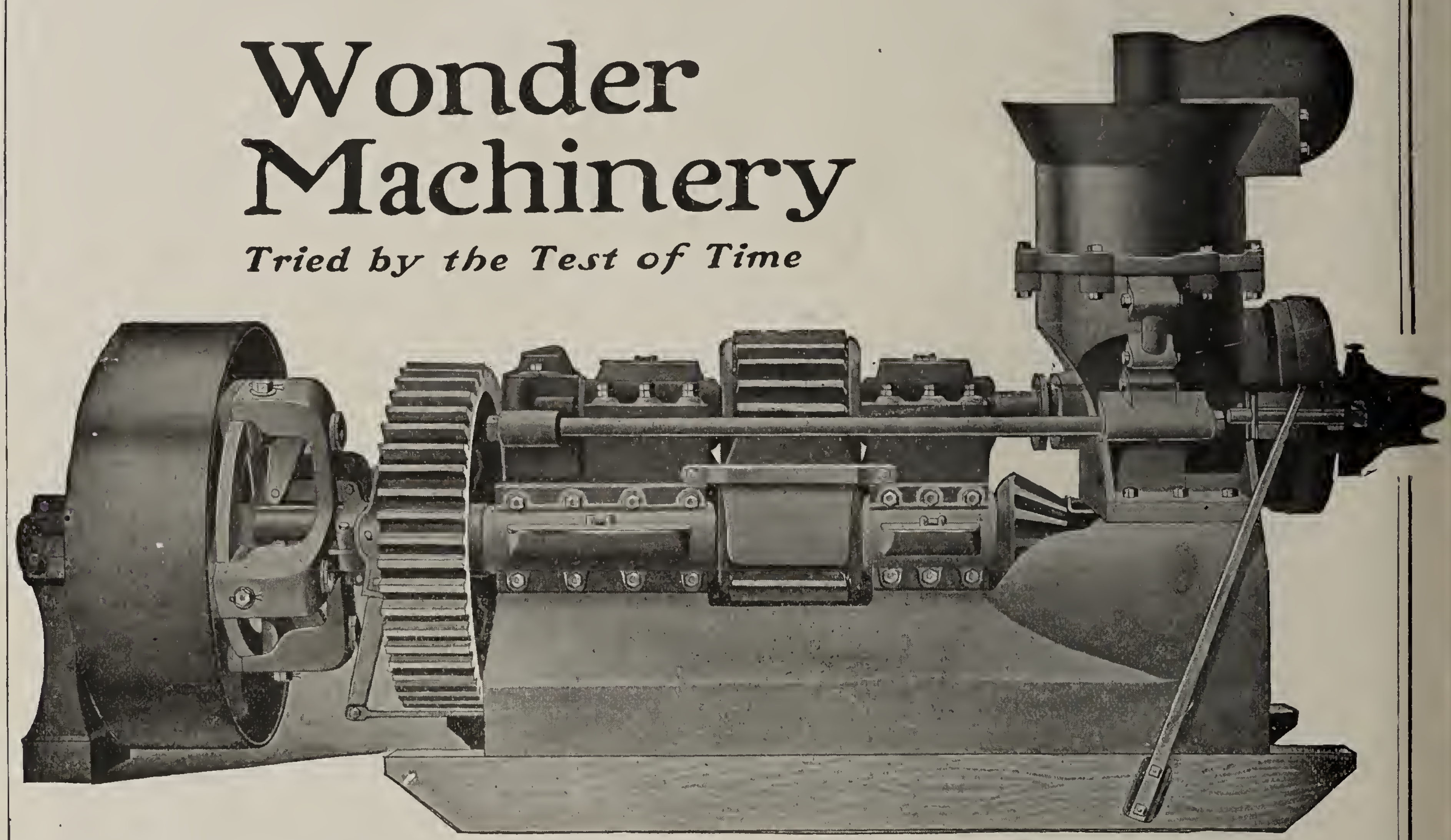
YOUR GOOD MONEY

can easily go to waste, through a little mistake in buying machinery. You can spend too much money for what less would buy; or you can buy that which will prove inefficient, unsatisfactory and undesirable.

You can secure the most value for your money in

Wonder Machinery

Tried by the Test of Time

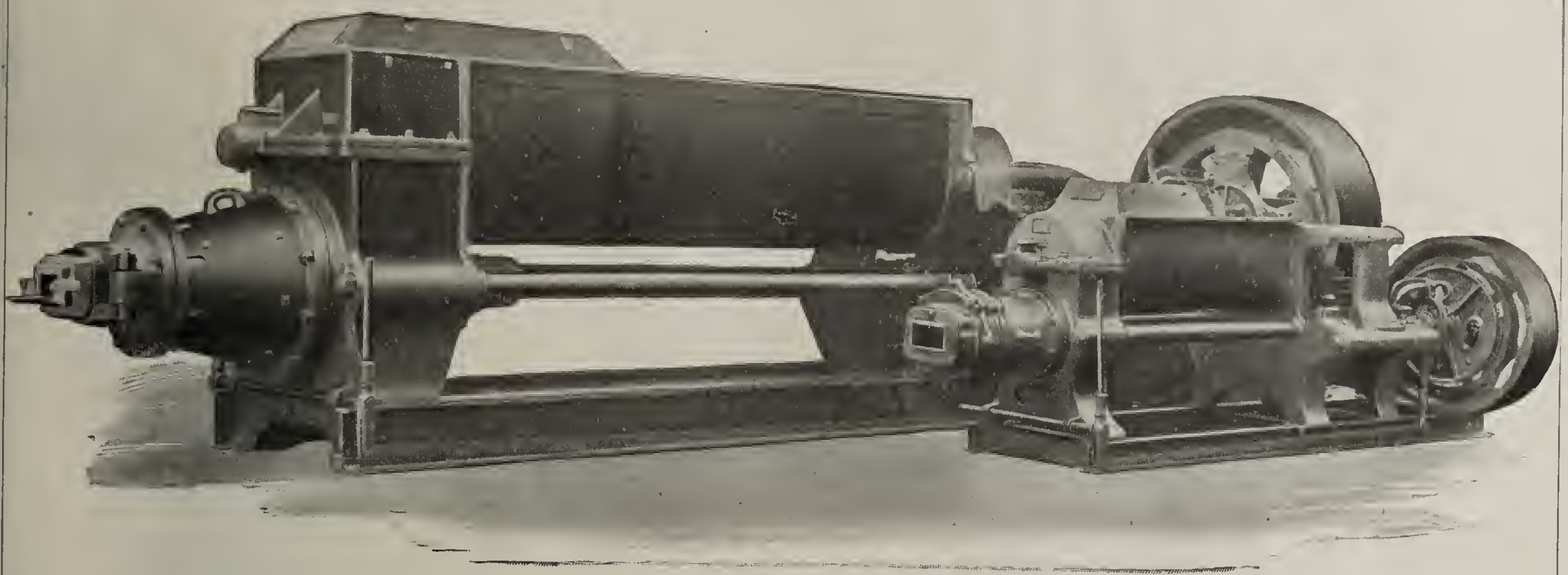


Brick, Tile and Hollow Block Machinery of every description. Granulators, Pug Mills, Disintegrators, Crushers, Cutters, Dry Pans, etc. Write for catalog

Wonder Machinery saves operating costs, reduces repair bills and eradicates troubles. **Don't let the first cost worry you**

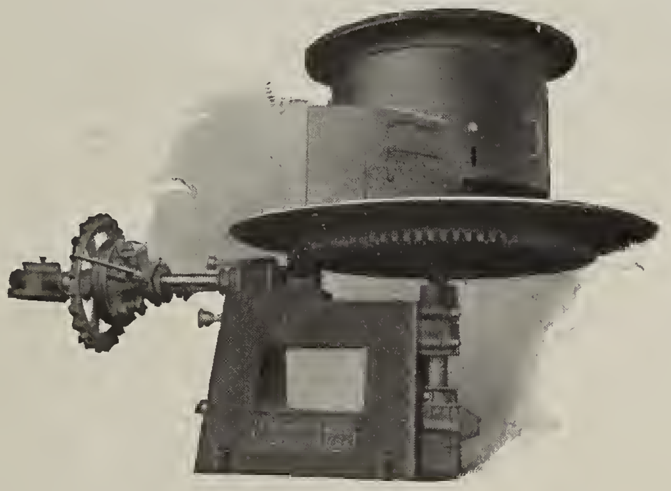
ASK US FOR PRICES NOW

WALLACE MFG CO. **FRANKFORT, INDIANA**



The UNION Brick Machine is built in twenty-two sizes and patterns—direct geared and countergeared. They are used in a large percentage of the most successful paving brick and building brick plants in the country.

A dependable testing rattler. Complies fully with the National Paving Brick Manufacturers' Association specifications.



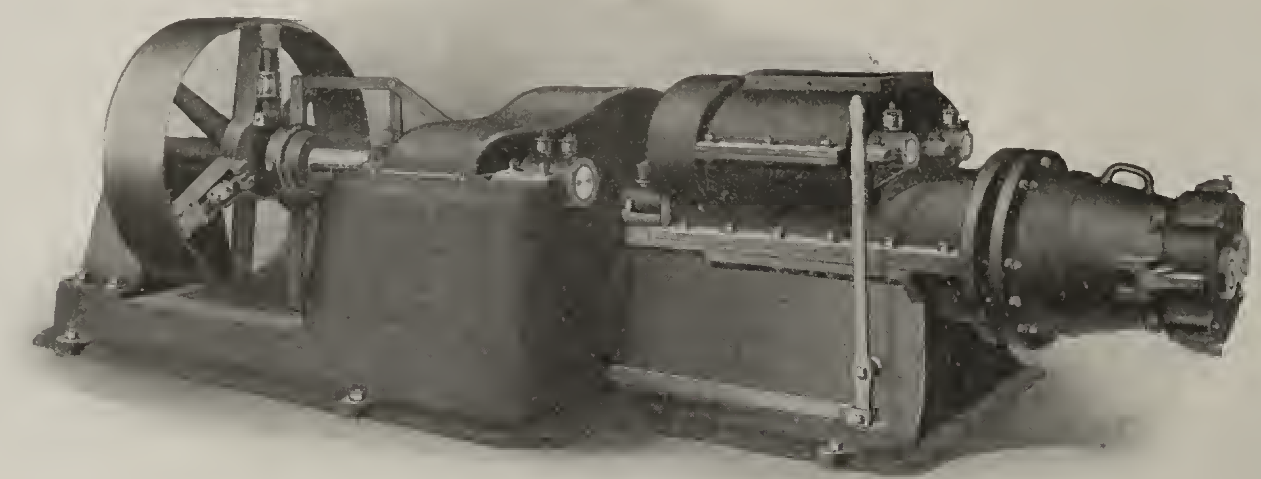
An improved automatic disc feeder with renewable wearing plate and renewable thrust bearing. Sprocket chain or belt drive.

E. M. FREESE & CO.

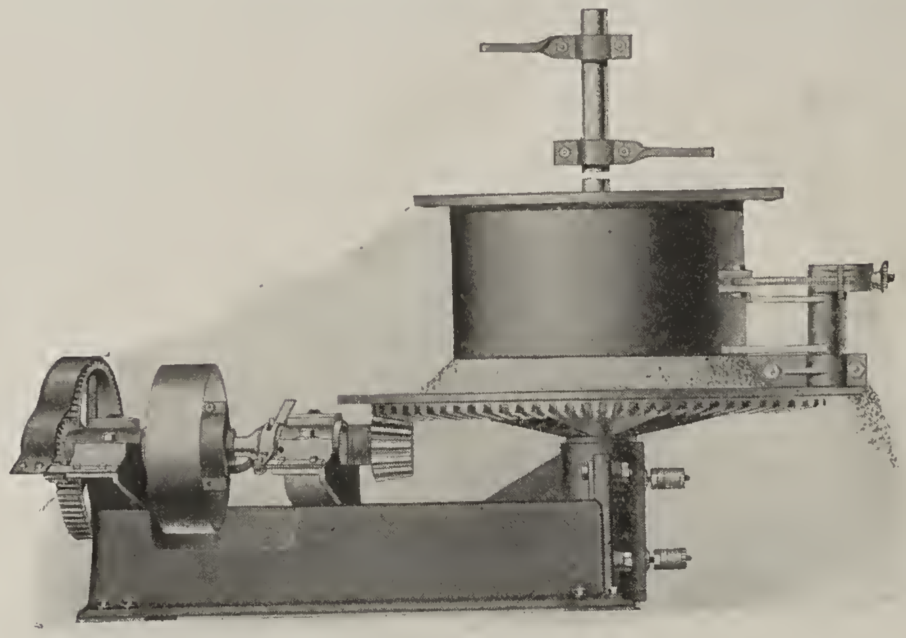
130 SOUTH STREET GALION, OHIO

Dependable Machinery of Proven Efficiency

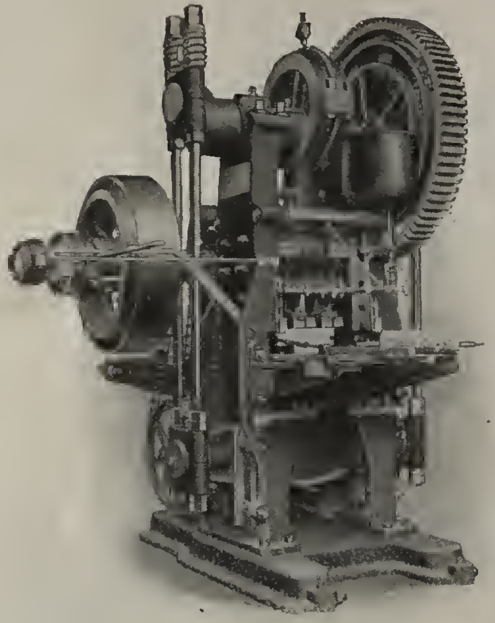
SAY I SAW IT IN BRICK AND CLAY RECORD



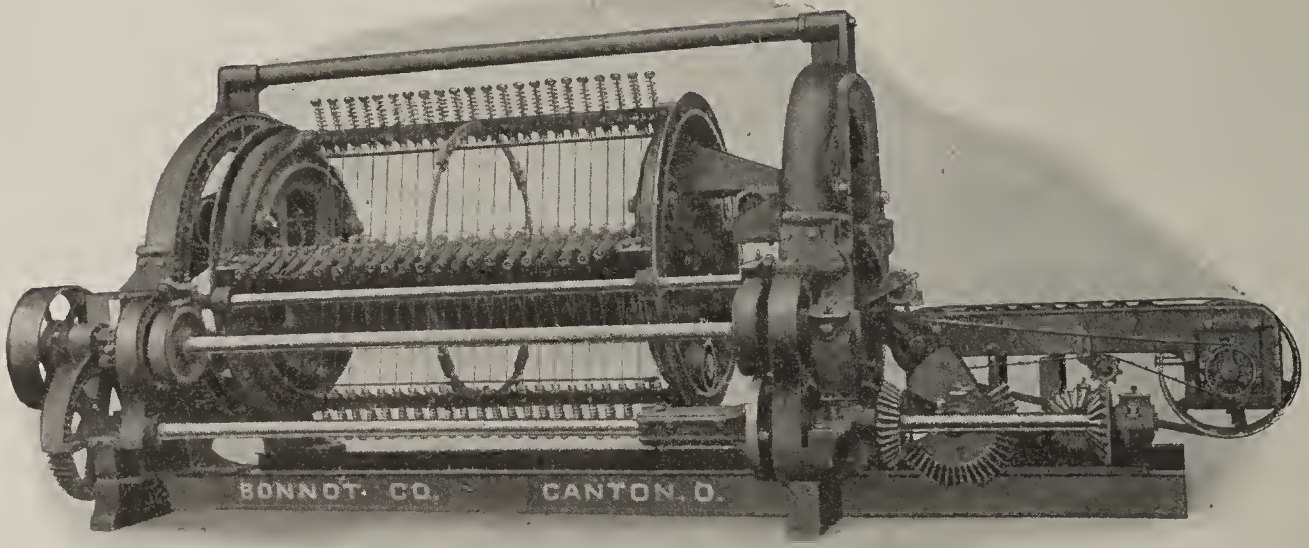
NO. 17 HOLLOW-WARE MACHINE, capacity 100-125 tons per day.



CLAY FEEDER



BONNOT REPRESS



ROTARY AUTOMATIC CUTTING TABLE

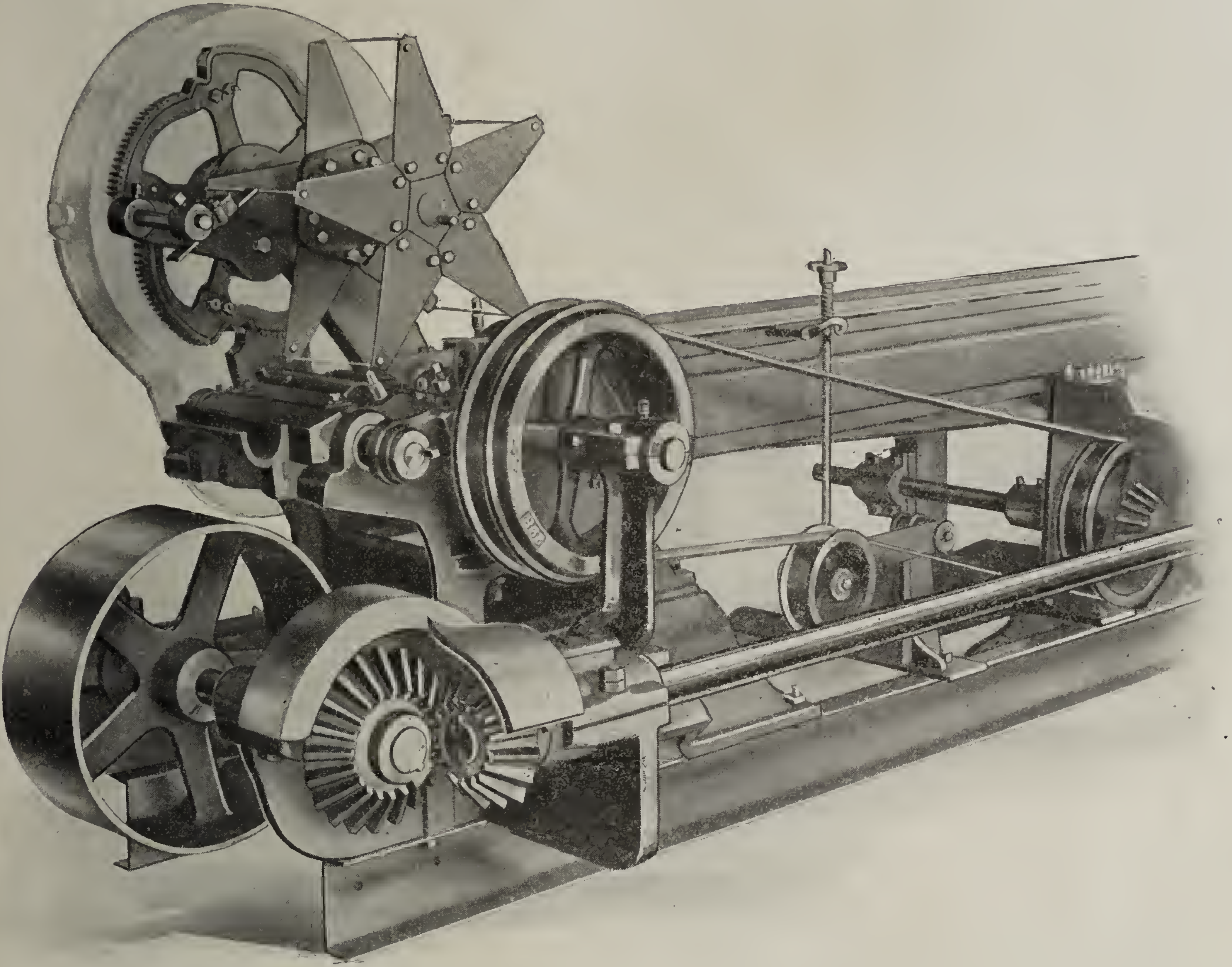
THE BONNOT COMPANY
CANTON, OHIO

909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

SAY I SAW IT IN BRICK AND CLAY RECORD

Consider the Advantage in Straight Cut Brick.



You have certainly heard of the perfect work of the Steele End Cutter.

Did you ever see a cutter so simple and reliable looking?

If you have any doubts about the superior principle or workmanship of this cutter frankly ask us to show you.

Will handle the largest capacities. Will work with any machine.

Nearly a thousand in use.

Would you like your competitor to put in this cutter first?

J. C. STEELE & SONS, Statesville, N. C.

George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.

SAY I SAW IT IN BRICK AND CLAY RECORD

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—A practical clayworker to take stock and position in increasing brick and hollow-ware plant in developed territory. Unlimited clay and shale of superior quality. Two hundred miles of dredge ditch within fifty-mile radius. Nearest hollow block plant one hundred miles. Two railroads. Coal one dollar ton. Will bear thorough investigation. Exceptional opportunity. Address: 9-AW, care of "Brick and Clay Record." 9-2P

WANTED—Expert salesman. Must have experience in selling face-brick, and be able to work up trade among agents. State age, references, salary desired and whether married or single. Address: 9-D, care of "Brick and Clay Record." 9-1

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—POSITIONS.

* * *

SALES MANAGER.

A man well and favorably known in the clayworking industry, prominent in association work, familiar with plant operation, of extensive experience, undoubted probity and excellent reputation, desires—for personal reasons—to sever present connections and make new ones.

The advertiser is, at the present time, operating a paving-brick plant in Pennsylvania. Previous products of this and other plants with which he was connected, have given experience in the manufacture and sale of face-brick, hollow ware and practically every one of the products of burned clay, excepting architectural terra cotta and the finer lines of pottory.

During the past fourteen years the advertiser has been with the company that he now considers leaving. While with them, every phase of the business has been within his province—manufacture, sale, collection and office management.

Every man has his forte. The advertiser has found that his strongest claim to efficiency is his ability to sell large and small consumers without cutting prices, and to educate salesforces, to the end that the men who work with and under him are made to beat competition, rather than meet it.

For further particulars, address: 9-C, care of "Brick and Clay Record." 9-1P

* * *

GENERAL MANAGER of fire brick company in Pennsylvania desires to make change. Experienced in costs, manufacture, sales and office management. Personal interview solicited. Address: 9-H, care of "Brick and Clay Record." 9-1P

POSITION WANTED—As superintendent, by young man who has had ten years' experience in face brick and refractories. Can handle work in both office and factory. Can install modern office systems and task and piece work in factory. At present employed and can give best of references from both present and former employers. Do not ask any contract, but am willing to let my work speak for itself. Address: 8-BB, care of "Brick and Clay Record." 8-2-1P

* * *

POSITION WANTED

By a superintendent of 25 years' experience, where hustling and a personal interest in plant are appreciated, and where merits, and not idle talk, will count. Seven years at last plant, where operating expenses were reduced nearly $1.00 per thousand, by increasing capacity with same machinery.

Am three years at present plant (capacity 20 millions). On account of depression of business, plant will shut down indefinitely.

If you are looking for a "Hot Air Artist" do not answer this ad. Both plants and others for references. Motto: "Results do the talking." Address: 9-B, care of "Brick and Clay Record." 9-1P

* * *

WANTED—Position as superintendent or burner for brick plant. Fifteen years' experience. Address: 9-AN, care of "Brick and Clay Record". 9-1P

WANTED—EQUIPMENT

WANTED—Several second-hand filter presses; must be in good condition. Either round or square plate, should be center feed, with from 75 to 100 chambers. Do not want a press in which the leaves have been ploughed for gaskets. Address: 9-A, care of "Brick and Clay Record." 9-1

WANTED—Small second-hand auger brick machine for testing clay. Must be cheap. Address 9-M, care of "Brick and Clay Record." 9-1P

WANTED—Brick truck arranged to raise and lower—for open air drying. Lot of double-deck dryer cars. C. H. Horton Co., Painesville, Ohio. 9-1

WANTED—CLAYWORKING PLANTS.

WANTED—We desire to buy or lease or contract for the whole or part of the output of a brick plant located in Eastern Pennsylvania or Maryland, having raw material suitable for the manufacture of hollow brick. State total capacity of plant and its facilities. Address: 9-S, care of "Brick and Clay Record." 9-1

WANTED—To purchase face-brick plant. Must be located in Pennsylvania, within 100 miles of Philadelphia. Address: 9-AO, care of "Brick and Clay Record".

FOR SALE—CLAYWORKING PLANTS.

FOR SALE OR RENT—On very reasonable terms, a most desirable face-brick plant. Located in Eastern Pennsylvania. Big money in it for capable brickmaker with very small capital. Address: 8-BA, care of "Brick and Clay Record." 8-2-1

FOR SALE—A BARGAIN—Brick, tile and hollow-ware plant, southwestern Wisconsin, five 30-foot down-draft kilns, fire-brick lined, waste heat driers, machinery in A-1 condition, ten acres red burning clay. Center of dairying and farming district. Great field for silo building. Address: 9-E, care of "Brick and Clay Record." 9-1P

FOR SALE OR LEASE—Lancaster (N. H.) Brick Company's plant. Unlimited clay and sand; side track to kilns. Will bear investigation. 9-3P

BRICKYARD FOR SALE—The old and well-established brickyard of L. H. Cordes & Co., in the city of Watertown, Wisconsin, with land, machinery and equipment is offered for sale. Address: L. H. Cordes & Co. 9-3

GRAND RAPIDS, MICHIGAN—Modern plant of 60 acres, daily capacity 90,000, railroad sidings, only yard in city. No clay competition, running every day. A bargain if investigated. Grand Rapids Brick Co. 9-2P

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAY LANDS.

CHANCE OF A LIFETIME—Celebrated Carter County, Kentucky, fire and plastic clays. Coal in connection, large acreage. Address: J. W. Henderson, Pres., Ashland, Ky. 9-3

FOR SALE—SECOND-HAND MACHINERY.

* * *

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAYWORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

* * *

FOR SALE AT YOUR OWN PRICE.

1 Frost engine, 85 h.p.
1 Frost boiler, 120 h.p.
1 Freese pugmill.
1 Freese disintegrator.
1 Freese drum hoist, 300 ft. cable, 1.5 ft. Buffalo fan.
3,000 ft. T rails, 2 dump cars.

24 steel bands for four 36 ft. down-draft kilns, also doors, grates, etc., in good shape, used but very little. Equipment all in good order. G. H. Wenner, Minden, Nebr. 9-1

FOR SALE—One 60 h. p. boiler, inspector's rating May 14th, 90 lbs., $50.00; 75 double-deck dry cars (new); one 50 h.p. engine (good), $75.00; one American pulverizer (new), also shafting, pulleys and belting. Address: Box 125, Muncie, Ind. 9-1

FOR SALE—One Monarch No. 6 soft-mud machine and sander. This machine made less than one million brick. We bought this machine for experimental purposes and have no further use for a soft-mud machine. Address: 8-X, care of "Brick and Clay Record." 8-2

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—One 4-mold Penfield dry press in good condition. Address: Hydraulic-Press Brick Co., 403 Rialto Bldg., Kansas City, Mo.

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

Brick and Clay Record Classified Ads Are Result Producers

FOR SALE—One 10,000 capacity brick outfit, consisting of one pugmill, disintegrator, etc. Machinery used less than six months; in good condition. Also one boiler and engine. Columbiana Savings Bank, Columbiana, Ala. 9-4

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—One second-hand Brewer No. 5 machine, also a lot of dryer cars. Gethmann Brick Co., Reinbeck, Iowa. 9-1P

BARGAIN SALE.

One ⅝ yd. steam shovel, fine condition; 6 tunnel Standard dryer outfit; Freese Union brick machine, with automatic cutter; Arnold-Creager brick machine, used one season; Berg 4-mold dry press; Raymond 2-mold power repress; heavy 9 ft. dry pan; 8 ft. Stevenson wet pan; Blake 9 x 15 in. jaw crusher; Raymond corrugated conical roll crusher; Raymond No. 3 hand repress; Russell 125 h. p., Corliss engine and 150 h.p. tubular boiler; Chambers 10 ft. pugmill; one used gasoline motor for hauling clay from the bank. The above machinery is all in good running order. C. H. Horton, Painesville, Ohio. 9-1

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

WANTED AT ONCE—Men to learn brickmaking, for positions paying $90.00 to $175.00 a month, or with a view of conducting their own business at $3,000 to $6,000 a year profit. Men thoroughly trained to become experts in a few months' time; expert instructors; tools instead of books used; training given under ACTUAL WORKING CONDITIONS; day or night courses; tuition very low; terms easy. Plumbing and electricity, motion picture operating and drafting also taught. Big demand now for men in these profitable trades. Don't delay. Write for full particulars TODAY. B. W. Cooke, Director, Coyne National Trade Schools, 31 E. Illinois St., Chicago, Ill. 9-2

—

PATENTS

Inventions Protected.
Trade Marks Registered.
Patents Investigated.
Established 1895.

HUBERT E. PECK.
635 F. St., Washington, D. C.

—

—

RAILS

All sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.

—

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

RAILS

SMALL ORDERS GIVEN SPECIAL ATTENTION

40, 56, 60, 70, 75, 80, 85 & 90 lb.

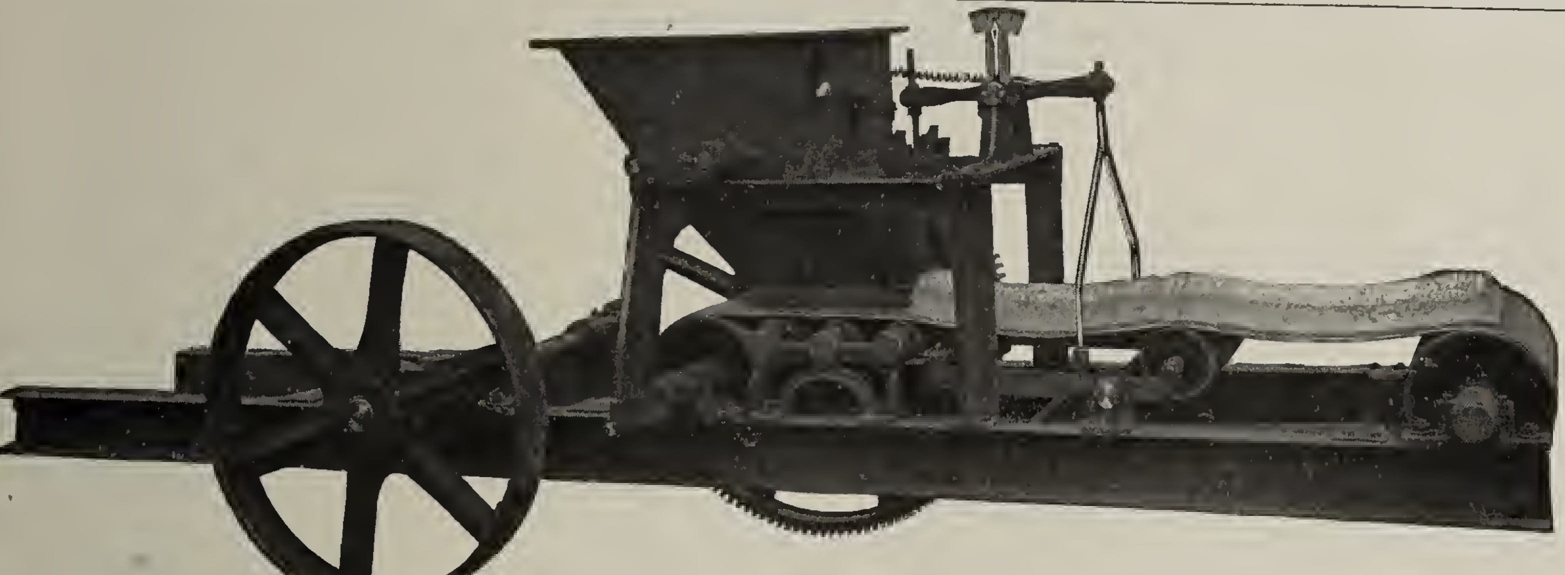
RELAYING RAILS
FOR SIDINGS, SPURS, ETC.

8, 12, 16, 20, 25, 30, 35, 40 & 45 lb.

NEW STEEL RAILS
FROGS AND SWITCHES

SECOND-HAND Rails, cut to any length desired, for BRACING, UNDERPINNING, LINTELS, concrete REENFORCING, BUCKSTAVES. All kept in stock for quick shipment

RICHARDSON & CO., INC.
1103 Bessemer Bldg.,
PITTSBURG, PA.
RAIL DEALERS



The Schaffer Poidometer—*What it will do*

It Will
—unite any number of materials in correct proportion.
—deliver them to pug mill at a predetermined number of pounds per minute.
—deliver water at a predetermined number of pints per minute.
—produce a clay column evenly tempered, of absolute uniformity.
—do this—and it eliminates the pug mill man.
—reduce cracking, because the dry house man knows the material.
—reduce burning loss, because the burner can always produce the same color and hardness.
—pay for itself in one season by reduction in labor alone.
—produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

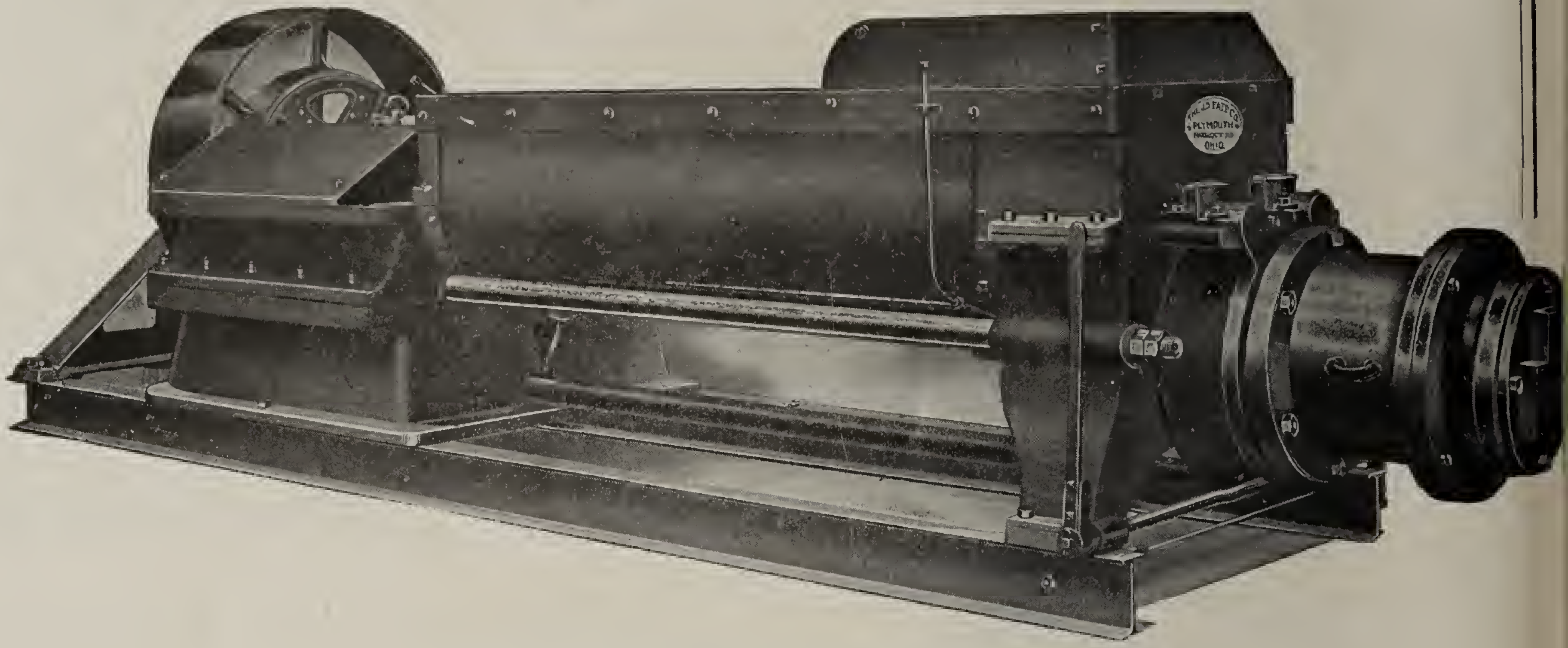
SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Fate Quality

THE PREMIER LINE
THE J. D. FATE COMPANY

Quality hinges on two things—mechanical perfection and the best material.

These factors enter into the product of the House of Fate.



SPECIAL PREMIER HOLLOW WARE MACHINE

The Special Premier has met some very Formidable Foes in the way of Stubborn Working Clays and Fought vs. Great Odds, since it Championed the Cause of the Clay Worker in his attempt to produce Merchantable Hollow Ware at a living Profit. However, it still stands today as the "Premier" of Hollow Ware Machines and ever ready to continue its Campaign for the Relief of the Distracted Clay Worker.

It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clay Working Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

The J. D. Fate Company Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgeway, Representative
Manufacturers Equipment Company, Dayton, Ohio, Sales Agents

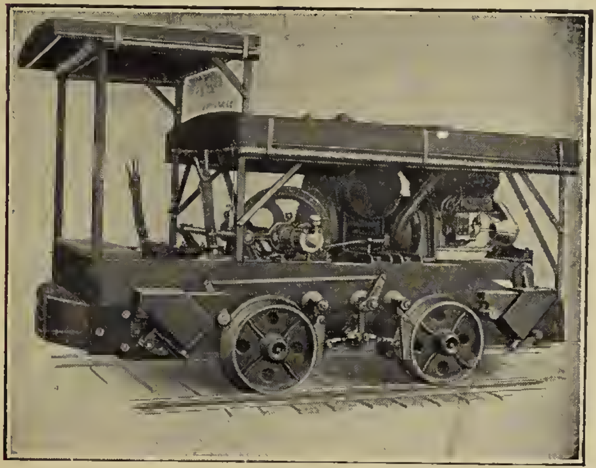
SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Fate Quality

THE PREMIER LINE
THE J.D. FATE COMPANY

Quality hinges on two things—mechanical perfection and the best material.

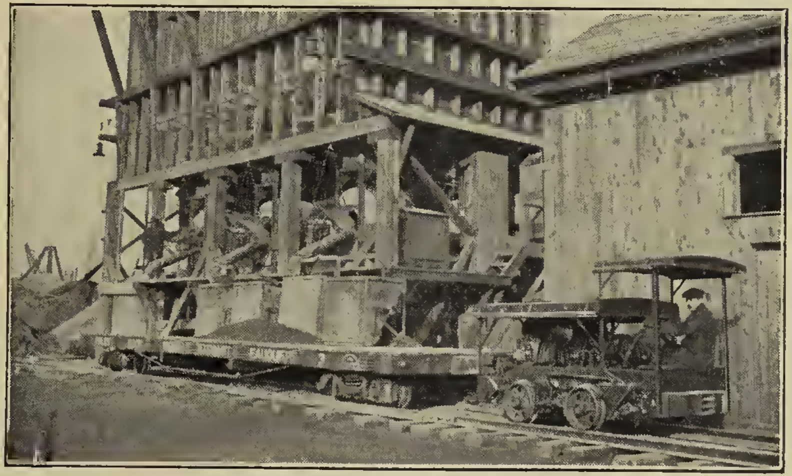
These factors enter into the product of the House of Fate.



Plymouth Gasoline Industrial Locomotives

Equipped with Continental 4-Cylinder Motor, Thermo-Syphon Cooled, Schebler Carburetor, Bosch High Tension Magneto, Hyatt Roller and New Departure Ball Bearings, Brakes and Sand on All Four Wheels.

Any Gauge — 20-inch to Standard.



The above views tell in a pictorial way some of the work our Gasoline Locomotives are doing—in a most satisfactory manner—from Long Island to Honolulu, from Nova Scotia to Texas, and at a surprisingly low cost for operation and maintenance.

Let us send you our descriptive catalog and tell you of an eight-year-old boy who runs one.

The J. D. Fate Company - - Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office, Woolworth Bldg., New York City, Jas. A. Ridgeway. Representative

SAY I SAW IT IN
BRICK AND CLAY RECORD

Any Dryer System Will Dry Your Ware—But What You Should Know Is: "Which One Dries It Uniformly and Economically"

Brooklyn Brick Co.
Cleveland, O.

Suburban Brick Co.,
Moundsville, W. Va.

Sirocco
TRADE MARK.

Waste Heat System Does This And More Too

That's the reason why our business with clay plants this year has shown such an increase. The clay products manufacturer demands to be "shown" and we **have** "shown" him by our successful operation of scores of dryers in every section of America.

"SIROCCO" Fans are the product of an engineering staff that has specialized on just this one article for many years. They are made with an outer circle of small curved blades that enable the "SIROCCO" to handle **more** heat with the lowest power requirement. This is a fact that we can prove to your entire satisfaction if you will let us show you what we have done for others.

Let our Brick Department submit you a layout to suit YOUR requirements. This is part of our service for which there is no charge to you.

AMERICAN BLOWER COMPANY
Sirocco
TRADE MARK

AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

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SEP 1915

BRICK and CLAY RECORD

STEVENSON Dry Pans produce more, Because they have toughness built in.

Step and toe—of tool steel and bronze.
Screen plates almost "hole-proof".
Gears mesh—whether worn or not.
Forty thousand pounds of ability.

They balance the plant.
No overtime grinding.

THE STEVENSON COMPANY
WELLSVILLE, OHIO

In the Heart of the Clay Industry. Write for Literature.

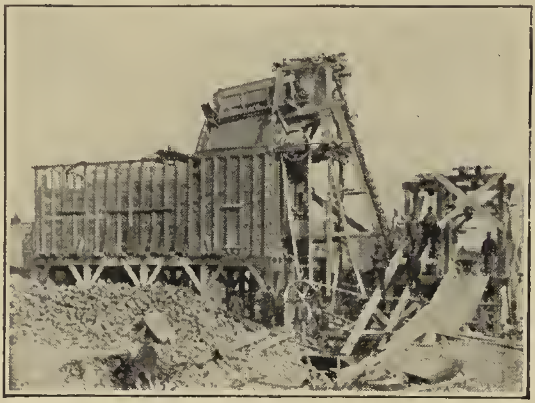
Vol. XLVII, No. 6 Chicago September 21, 1915

WELLER-MADE

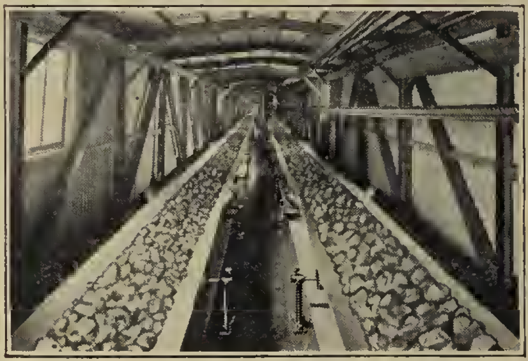
Elevating, Conveying and Power Transmitting Systems for Large or Small Plants

We do not know everything, but we certainly do know how to turn out machinery of this class, that will give you better service and stand more and harder usage than you can buy any place else.

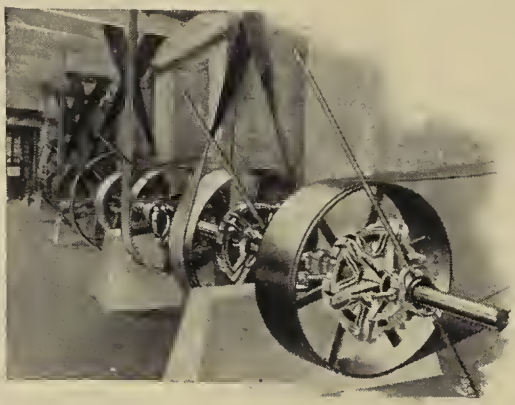
Our prices are right; they are not extremely low, neither are they unreasonably high. We simply give you a full solid dollar's worth of material for every dollar you pay us.



We know the right kind of elevator buckets and layouts to give you because we have an experienced clayman to look after this particular trade and we carefully study your conditions and give you the right buckets and arrangement for your particular requirements.



We know the right kind of conveyor for service. It may be a belt, scraper, screw, drag, apron or other type. Our line is the most extensive of any concern in the business and we are not hampered or held down to a single type because of limited patterns.



For transmitting power from main engine, main or individual motors, from shaft to shaft or to individual machine, whether it requires a 1,000 h. p. rope drive, a belt drive, small or large chain drives, or gears, we have equipment that will do this work for you in the most economical manner.

In the screening of clay, shale, flint, ganister, grog, coal or any other material around your plant, we can give you a screen that will do your work and do it right, because we have a practically unlimited line of stationary, shaking and revolving screens either open or enclosed.

Remember—Another season is drawing to a close. How much have you lost through not having a suitable Clay Storage Plant and Handling System?

IF WE CAN HELP YOU SAVE MONEY, WE BOTH GAIN

WELLER MFG. CO., CHICAGO

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50 Church St.

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Akron
10 W. Buchtel Ave.

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Dallas
711 Main St.

San Francisco
316 Rialto Bldg.

SAY I SAW IT IN BRICK AND CLAY RECORD

Trautwein
DRYERS

THE LAST WORD IN CLAY PRODUCT DRYING

TRAUTWEIN DRYER & ENGINEERING CO.
417 SO. DEARBORN STREET
CHICAGO

AGAIN WE SAY:

THE CLAUDE SMITH KILNS

FOR BURNING CLAY PRODUCTS

ARE THE BEST WHICH EXPERIENCE AND LABOR CAN PRODUCE

Our Bulletin Tells You Why

CLAUDE SMITH COMPANY
KILN BUILDERS
PLYMOUTH BUILDING, CHICAGO, ILL.

SAY "I SAW IT IN
BRICK AND CLAY RECORD"

Service to Clayworkers

"Politeness Forbids—"

Some time ago, an architectural magazine received a letter from a prominent architect, enclosing a postal which the architect had sent to a manufacturer of a certain building accessory. The card read:

"Dear Sir: Your advertising matter received with thanks. We respectfully suggest that a card of yours, in the ——————— published in San Francisco, would be much easier for us to find—when wanted. We preserve the latter. Politeness forbids one from stating what becomes of the former."

How many clayworking plants, do you suppose, have a full fledged filing cabinet and indexing system, wherein your printed matter can be conveniently put away, and at the same time, be ready of access at the moment it is wanted?

Does it seem reasonable, or otherwise, that when the man who places the orders is ready to buy, he will consult the advertising columns and classified index of his favorite trade journal—rather than try to remember where in Sam Hill he put that folder that came in a month ago?

As the San Francisco architect says—it would be much easier to find —WHEN WANTED.

Does the suggestion give you a thought? "Brick and Clay Record" has a service department that is at your disposal.

The letter "P" preceding a number refers to the "Pink Section"

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Alliance Clay Pro. Co....P- 5
Alsey Brick & Tile Co....P- 3
Alton Brick Co....P- 4
American Blower....411
American Clay & Cement Corp....P- 7
American Enameled Brick & Tile Co....P- 8
American Process Co....473
Ambursen Co....477
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Baird Mach. & Mfg. Co....458
Baldwin Loco. Wks....456
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Big Four Clay Co....P- 6
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Woodhouse Chain Wks....450

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Leviathan Belting

Is No Better

in an advertisement than is its weakest imitator. It is on the job, right in the clay plant

That It Excels

Ask the man who owns a dividend producer.

Main Belting Company

Manufacturers and Engineers

Philadelphia
Pittsburgh
New York
Seattle
Chicago
Birmingham

Main Belting Co. of Canada, Ltd.
Montreal Toronto

Send for Booklet No. 2 on Conveying

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Book Department

Bibliography of Clay and Ceramic Arts (Branner)	$2.00
Bricks and Tiles (Dobson)	$1.20
Brick Drying (English Edition)	$1.00
Brick Houses and How to Build Them (Radford)	$1.00
Bricklaying, Rudiments of Practical (Hammond)	60c
Bricklaying System (Gilbreth)	$3.00
Brick Work (Walker)	60c
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Cement, Concrete and Bricks (Searle)	$3.00
Clays: Their Occurrence, Properties and Uses (Ries)	$5.00
Clay Glazes and Enamels (Griffen)	$5.00
Clays, Tables of Analyses (Crossley)	$2.00
Clayworker's Handbook (Searle)	$2.00
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Handbook of Steam Shovel Work	$1.50
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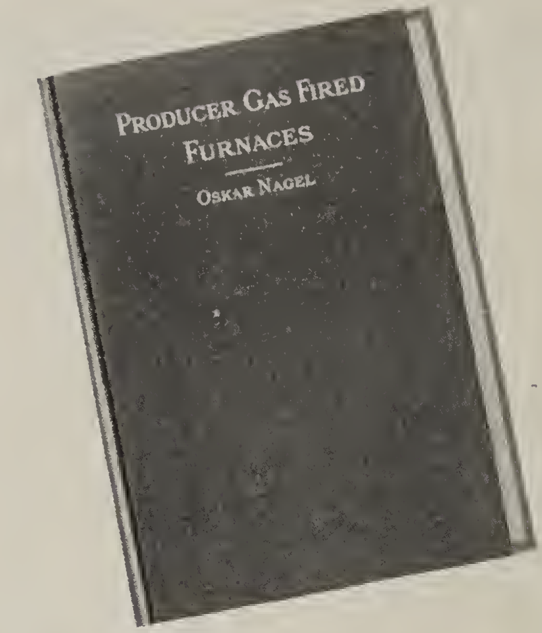
How to Analyze Clay (Ashby)	$1.00
How to Read Plans (Radford)	50c



192 Pages, 9x6, 237 Illus. - $2.00

THE USE OF PRODUCER GAS as an industrial fuel is constantly increasing and represents a distinct progress in economy and hygienics. One ton of coal will do more work after its transformation into gas than it would do under a direct firing process, and the fact that low grade fuels can be used instead of the higher grades, makes the use of producer gas a large factor in conservation.

The suitable construction of an industrial furnace is of the greatest importance for the satisfactory application of producer gas. To give detailed descriptions and practical illustrations of nearly all kinds of gas fired furnaces is the main object of this book, which is the first American work on this subject. Actual installations of the furnaces used in a large number of industries are described and illustrated.

This book is on sale through "Brick and Clay Record's" Book Department, at $2.00, postage paid.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

Manufacture of Glazed Bricks (English Edition)	$2.50
Manufacture of Roofing Tile (Worcester)	75c
Manufacture of Roofing Tile (English Edition)	$1.00
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Modern Brickmaking (Searle)	$5.00
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Address All Inquiries to

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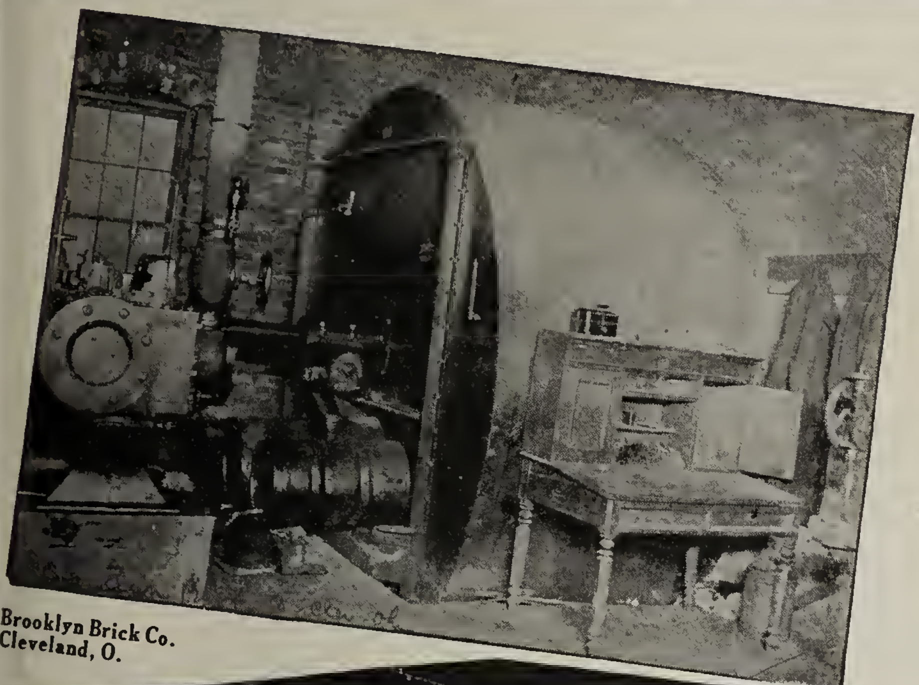
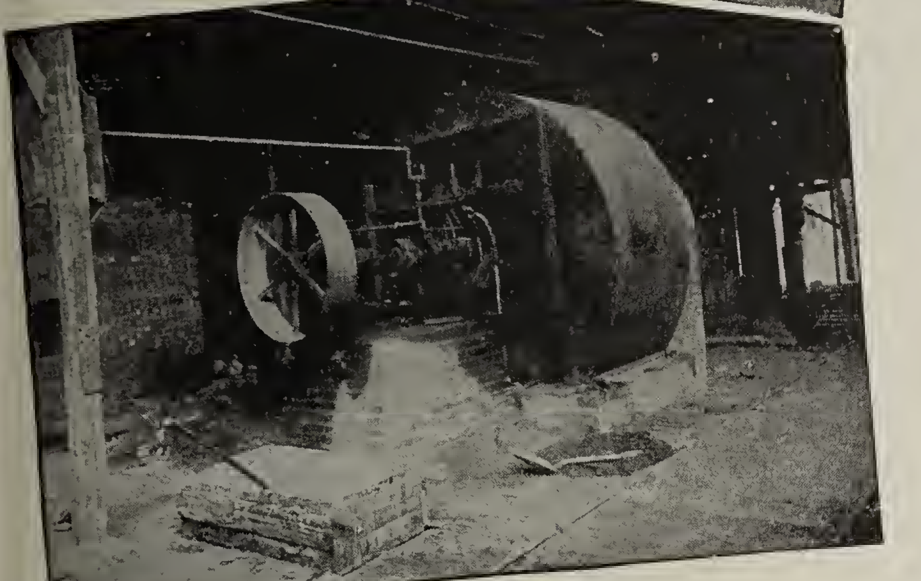
445 Plymouth Court, Chicago, U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD

Any Dryer System Will Dry Your Ware—But What You Should Know Is: "Which One Dries It Uniformly and Economically"



Brooklyn Brick Co.
Cleveland, O.



Suburban Brick Co.,
Moundsville, W. Va.

Sirocco
TRADE MARK.

Waste Heat System Does This And More Too

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Let our Brick Department submit you a layout to suit YOUR requirements. This is part of our service for which there is no charge to you.

AMERICAN BLOWER COMPANY
DETROIT, MICHIGAN, U.S.A.

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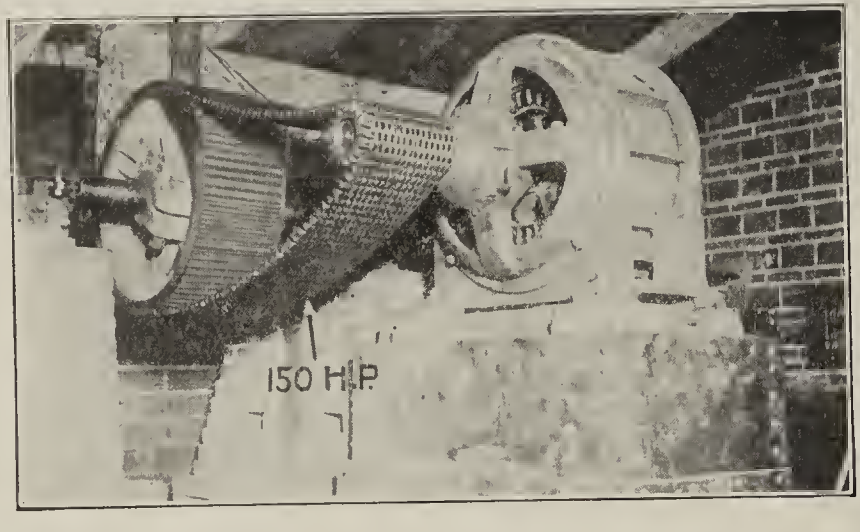
Indianapolis, 1462 Lempke Annex
Boston, Mass., 120 Milk St.
Columbus, O., 810 Harrison Bldg.

SAY, I SAW IT IN BRICK AND CLAY RECORD

“NINE YEARS OLD AND STILL GIVING GOOD SERVICE”

That’s what the Superintendent of one of the largest Terra Cotta plants in the East recently said about the

LINK-BELT SILENT CHAIN DRIVE



Main Drive in Eastern Clay Plant. Note Compactness.

The ideal way to drive brick plant machinery because it is as flexible as a belt—positive as a gear—yet superior to both because it reduces shock—allows compact arrangement of machines—has long life with practically no attention or repair.

Read What that Same Superintendent Said Further:

> “* * * * We have three 50 H.P. drives on our wet pans, three 25 H.P. drives on our auger machines, one 20 H.P. drive on an air compressor, and a 15 H.P. drive on our rubbing beds. * * * * Chain drive on wet pan No. 3 has been running constantly for nine years and is still giving good service. The other two 50 H.P. drives have been in five years and are in excellent shape. * * * * We obtain a greater output. * * * * No loss of power through belt slipping. * * * * Cost of maintenance very much less than when we had leather belts.”

No matter what your experience has been with drives and belts—or what you **think** you know about the Link-Belt Silent Chain Drive—it will pay you to investigate—to find out for yourself whether we can help you to make a better product at a lower cost of production. We claim we can—why not make us prove it? No trouble to us—no cost or obligation for you.

Just Write for Data Book No. 125—No Charge for it

LINK-BELT COMPANY

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Boston.....................49 Federal St.
Pittsburgh...........1501 Park Building
St. Louis...Central National Bank Bldg.
Buffalo...............698 Ellicott Square

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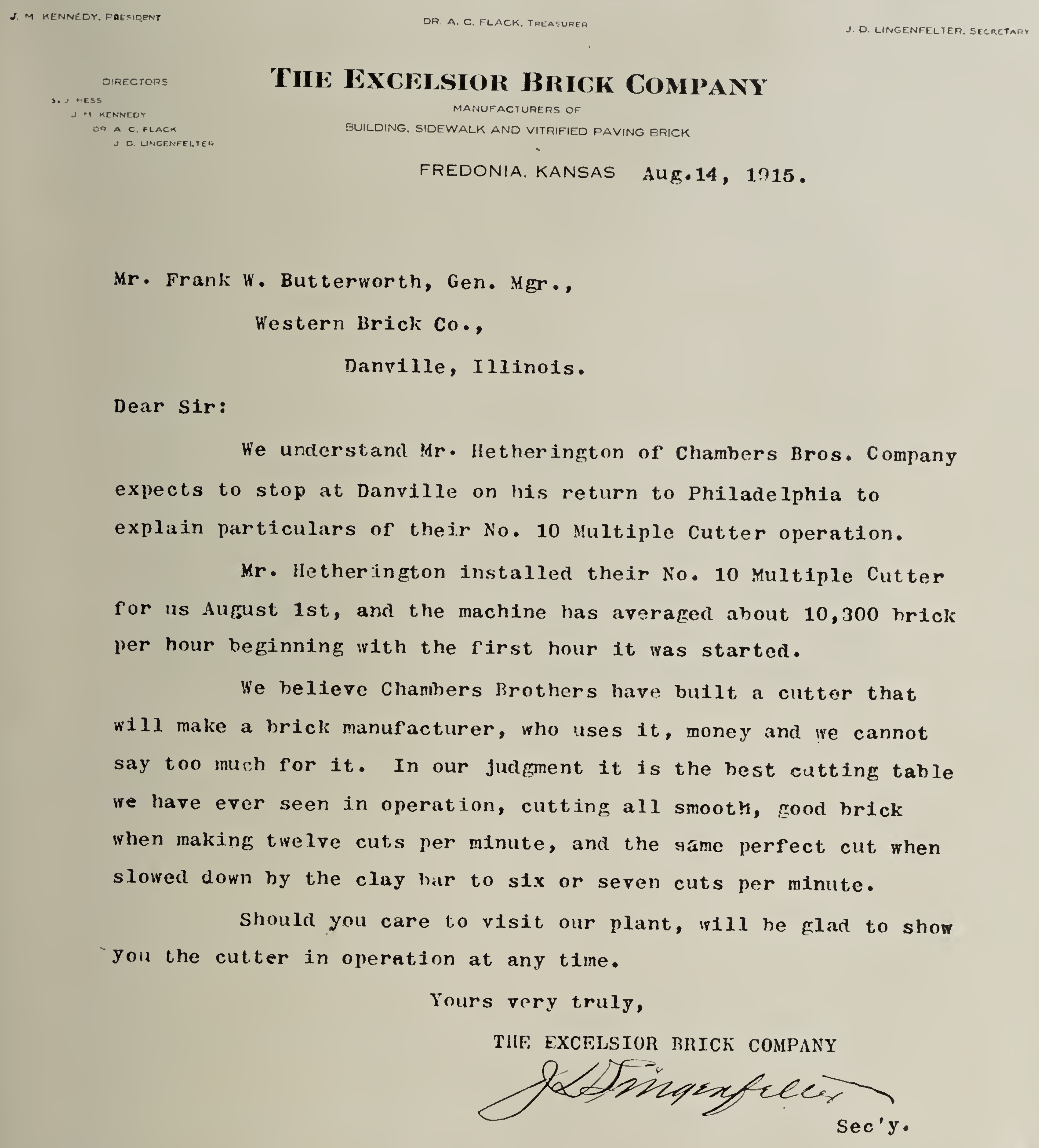
Cleveland..........Rockefeller Building
Detroit............911 Dime Bank Bldg.
Seattle..............580 1st Ave., South
Denver........Lindrooth, Shubart & Co.

San Francisco.....Meese & Gottfried Co.
New Orleans........Whitney Supply Co.
Los Angeles......204 N. Los Angeles St.
Minneapolis........Link-Belt Supply Co.
Montreal, Can...John Millen & Son, Ltd.

SAY I SAW IT IN BRICK AND CLAY RECORD

Read what one user of Chambers No. 10 Multiple Cutter says



J. M. KENNEDY, PRESIDENT
DR. A. C. FLACK, TREASURER
J. D. LINGENFELTER, SECRETARY

DIRECTORS
S. J. HESS
J. M. KENNEDY
DR. A. C. FLACK
J. D. LINGENFELTER

THE EXCELSIOR BRICK COMPANY
MANUFACTURERS OF
BUILDING, SIDEWALK AND VITRIFIED PAVING BRICK

FREDONIA, KANSAS Aug. 14, 1915.

Mr. Frank W. Butterworth, Gen. Mgr.,
Western Brick Co.,
Danville, Illinois.

Dear Sir:

We understand Mr. Hetherington of Chambers Bros. Company expects to stop at Danville on his return to Philadelphia to explain particulars of their No. 10 Multiple Cutter operation.

Mr. Hetherington installed their No. 10 Multiple Cutter for us August 1st, and the machine has averaged about 10,300 brick per hour beginning with the first hour it was started.

We believe Chambers Brothers have built a cutter that will make a brick manufacturer, who uses it, money and we cannot say too much for it. In our judgment it is the best cutting table we have ever seen in operation, cutting all smooth, good brick when making twelve cuts per minute, and the same perfect cut when slowed down by the clay bar to six or seven cuts per minute.

Should you care to visit our plant, will be glad to show you the cutter in operation at any time.

Yours very truly,

THE EXCELSIOR BRICK COMPANY
J D Lingenfelter
Sec'y.

CHAMBERS BROTHERS CO., Philadelphia, Pa.

"SCANDINAVIA"

(SOLID WOVEN COTTON BELT)

THE MAIN DRIVE BELT

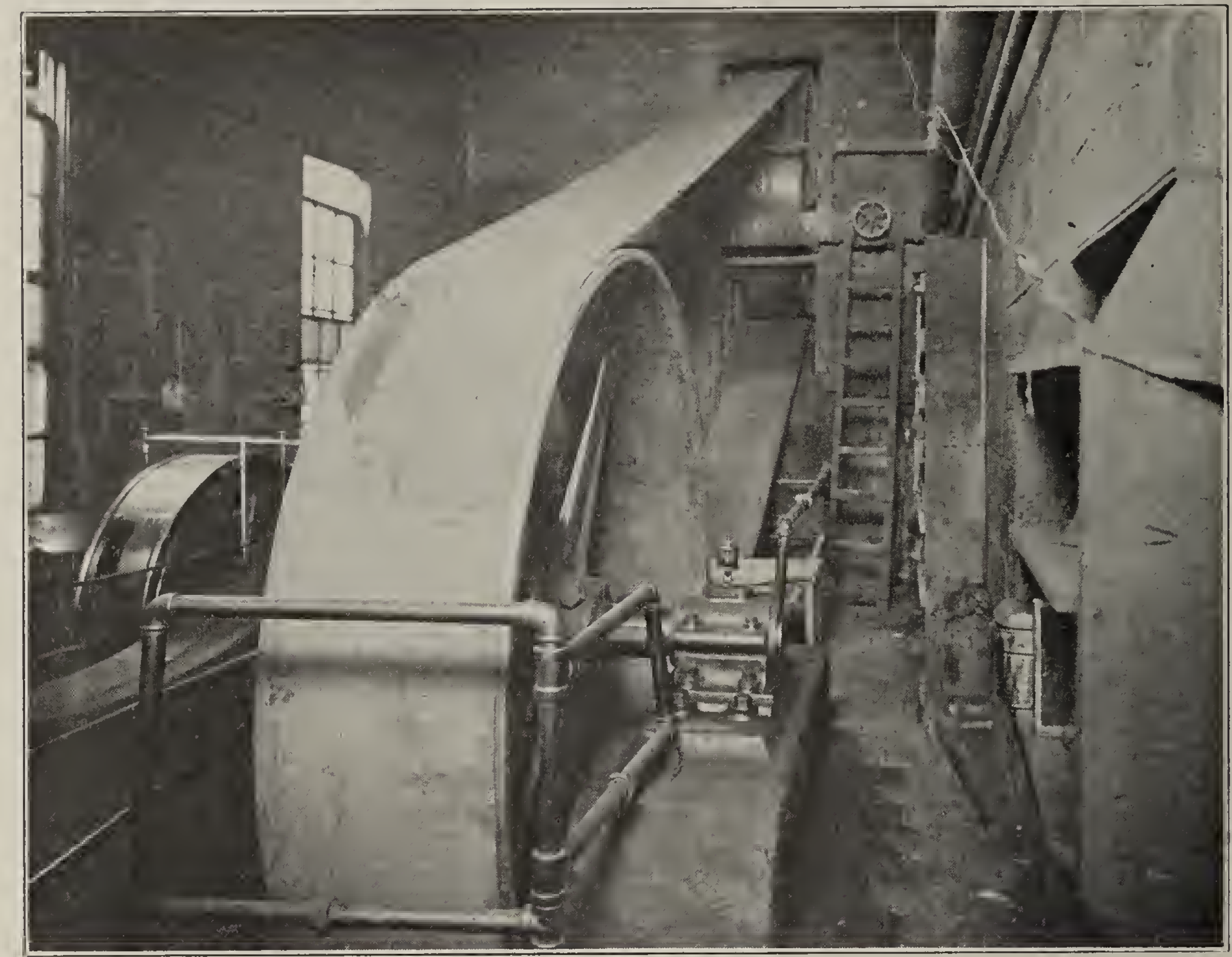


Illustration shows a 24-inch "SCANDINAVIA" extra stout belt on an engine drive in a brick plant. Belt speed 4600 feet per minute, transmitting 325 H. P., "SCANDINAVIA" giving better service than rubber, previously used.

Why "SCANDINAVIA" gives better service.

Because "SCANDINAVIA"—

- Is solid woven, no plies, no stitches, no laps.
- Has better gripping power.
- Drives more horse-power.
- Has greater strength.
- Is not affected by steam, water, oil or dust.
- Is absolutely uniform.

Every foot guaranteed.

Write our nearest branch for further particulars.

SCANDINAVIA BELTING COMPANY

106-108 Reade Street, NEW YORK

Atlanta Boston Buffalo Chicago Cleveland Easton, Pa. Pittsburgh Los Angeles San Francisco Portland, Ore.
CANADA—FEDERAL ENGINEERING CO., LTD.—TORONTO,—MONTREAL

SAY "I SAW IT IN" BRICK AND CLAY RECORD

BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

⁂

Published on the First and Third Tuesdays in Each Month by the

Kenfield-Leach Company

445 Plymouth Court, Chicago

⁂

Cable Address Kenleaco, Chicago

⁂

Telephone Harrison 951

Chicago, Sept. 21, 1915

Vol. XLVII No. 6

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⁂

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Single Copies, 20c.

The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

INDUSTRIAL PATERNALISM is passing. Labor unions, workmen's compensation acts, minimum wage legislation and what-not have made great changes in the conditions which existed some years ago, when a man worked for one concern and gave to it the vigor of his youth and the wisdom of his age.

Then the employer knew his men—knew when they married, and who; knew of the trips of the doctor's little black bag and the undertaker's big black wagon. Knew, and sympathized with, the men who worked for him for a day's wage—and earned it.

In days of trouble, the employer was called upon for help. He gave the financial assistance that tided over the bad places, or made possible the ambitions of the sons of those who worked in his shop. His influence was asked, at times, to bring erring youngsters back to paths of rectitude, and he listened to many a story told in shame, that good might come to those whose feet had strayed.

Piece-work has done much to estrange the employer from his men. The workman is by way of being his own boss. A day off, now and again, lessens the amount of his pay-envelope, and he looks upon that deficit as something peculiarly his own business.

The worker who, by steady application to the task assigned him, makes his weekly or semi-monthly pay larger than that of his fellows, feels that he is giving a stated amount of labor for a stated amount of money, and expects no acknowledgment beyond that shown in the figures that follow the dollar sign on the corner of his envelope.

He knows that, if the demand for the product of the plant is slackened, he, as one of the more efficient workers, will be among the last to be laid off; yet he thinks, and has reason to think, that the production which he has helped to "speed up" may be the giant that will arise and crush him, when the orders stop coming in, shipments become small, and the men put on half-time.

What Are the Men Thinking About?

It is important that the employer know what his men are thinking about. That is a homely way of expressing a truth. But from the lack of this knowledge springs industrial trouble.

In the days when employers were brought in close personal contact with their men, they had a quick-reading barometer of the attitude of a great part of those whose names were on their payrolls. A friendly act, a bit of advice, a showing of the "heart side" of life, was rewarded with an insight—not only into the mind of the man with whom intimate contact was made, but with the others that worked in the pit, the machine room or the kilns.

Today, trouble is known only when it has assumed dangerous proportions. Loyalty to the "boss" is regarded as disloyalty to fellow workmen. Men who know that the evil tongue of the malcontent is disrupting the human mechanism of the plant, have no way of telling what they know to the man whose business instinct has made it possible for them to earn a living for themselves and families.

Getting Closer to the Workmen

The community of interest that should exist between the employer and the employed can be established and encouraged, even under adverse labor conditions. The offering of cash prizes for the best suggestions that will benefit the concern is one way; it not only sets the men thinking in the right direction, but encourages them to bring these thoughts to the men who are in charge of the business. It opens the door marked "Private" and brings the lowliest worker into personal contact with the fountain head.

The end will not be served if the suggestions are to be made to a foreman or superintendent. The idea goes beyond that—it is not the value of the suggestion, but of the spirit that makes the suggestion possible.

If, as a result of your being willing to listen to a man in overalls, and to shake his grimy hand when he comes to you, you are given an idea that will cut your producing cost, you have an added profit. The first and most important gain was made when he became willing to come to you with the information.

Have it understood, in the first place, that you will respect his confidence. Make him understand that you appreciate his being willing to incur suspicion, perhaps, in order to help himself by helping you. Give him one of the cigars that you reserve for customers with big Bradstreet ratings.

Do Away With the "Floater"

The man who works in your plant day in and day out, year after year, comes to know your product in a way that is impossible for the newcomer. Yet, if you work on the piecework system, the newcomer receives as much pay as the man who works with a sure knowledge of your ideals and limitations.

Help the man who knows you and your ware and your clay, by offering a bonus to those who remain in your employ a second season. Add to this bonus a certain amount for those who miss but a small percentage of working days. Encourage the steady worker.

If a man loses time through illness—whether it be his own, or in his family—do not penalize him. The idea is to give the bonus—not to withhold it.

These things may add a little to the amount you pay out for labor. They will, however, give you a more dependable working force and a better output.

The employer who withdraws himself from his men hastens the day of strikes, or of labor friction—a trouble which, while it may not mean a strike, often has results fully as disastrous, yet much harder to straighten out.

The employer who knows what his men are thinking about is apt to have a lower labor cost than one who does not care or who—caring—does not try to gain some knowledge of what the men have on their minds.

"Buy It Now"

The slogan "Buy It Now" has taken on a new significance within the past few months. The man who figured that he could outguess everyone else, frequently finds himself either called upon to pay a higher price today than the one that went begging early in the summer—or is told that he must wait for deliveries.

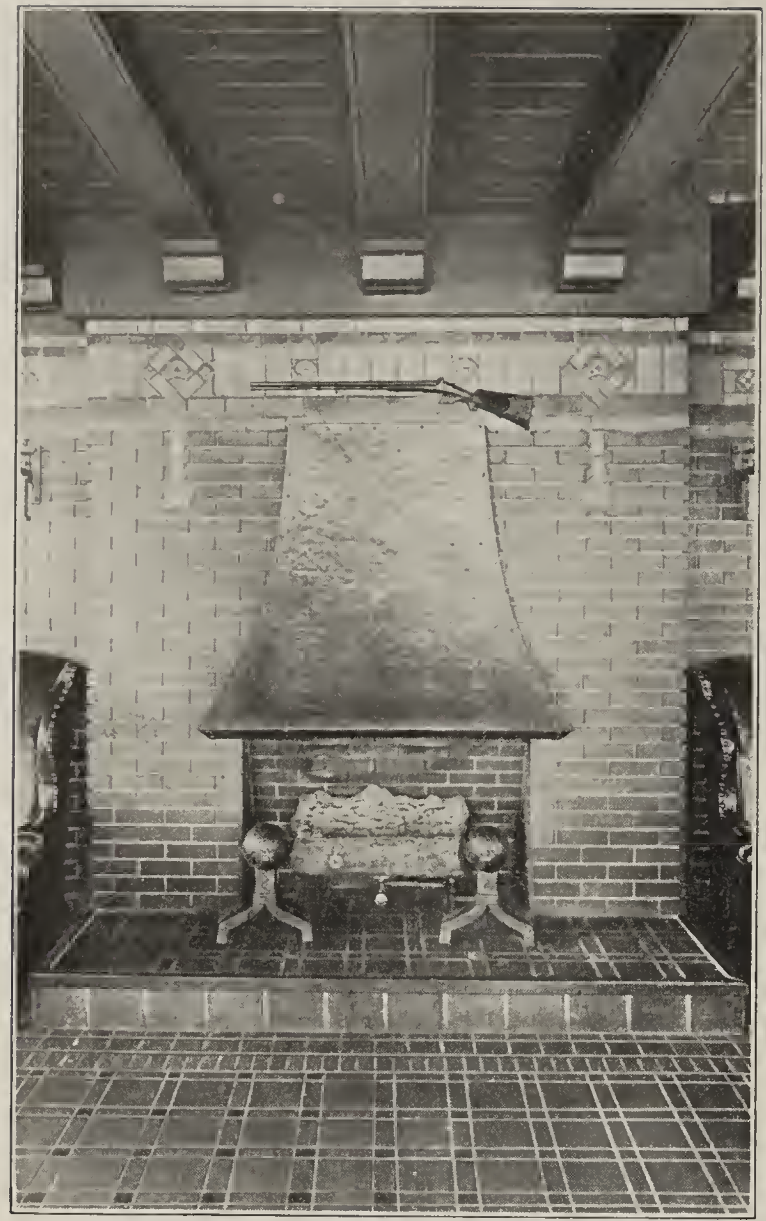
The sluggish disposition of the buying public compelled many industries to turn to the manufacture of munitions. The big profits that came to this sort of work may have tempted these industries, but it is easy to believe that many plants would not have been changed over to make munitions, had their books been filled with orders for their regular lines—orders placed by their regular customers.

Today, when these customers are in the market, urging quick deliveries on materials that are necessary to their continued activity, they find that the materials are not available. So they complain of the dollar-greed of the men who, by accepting profitable export business, have taken their producing power away from other American industrials.

They forget how much they, by a mistaken economy and a "do nothing" principle, compelled the very thing that is causing them so great a loss in time and money.

The "Buy it Now" argument is just as good, today, as it was six months ago. If you find a customer who cannot make up his mind to go ahead, remind him of the railroads, some of whom find that they will not be able to get steel rails until September, 1916.

The "Buy it Now" argument, judiciously used, may create a winter building movement which will help to offset the erratic business of the year now closing. There is no especial reason why investors should postpone building "until the frost is out of the ground"—that is, no reason that a good building material salesman cannot refute, and truly.



The Brick Fireplace in the Card Room. The Hearth is Raised from the Floor and Bordered with Hammered Brass

Brick and Tile

Displace Conventional

Interior Decoration

Carved Woodwork and Other Less Permanent Decorative Materials Give Place to Burned Clay

EDITOR'S NOTE: The growing tendency among the better architects to use everlasting burned clay for interior decoration has a promise for the men who are manufacturing brick and tile. Articles like this are worth reprinting and if intelligently distributed, will help to create a profitable market.

THE POSSIBILITIES OF BRICK as a material for interior decoration are becoming better known with each year's architectural progress. Examples of craftsmanship equal to any that has been shown in Europe, are being made in a score of cities. An instance with more than a passing interest is the subject of this article.

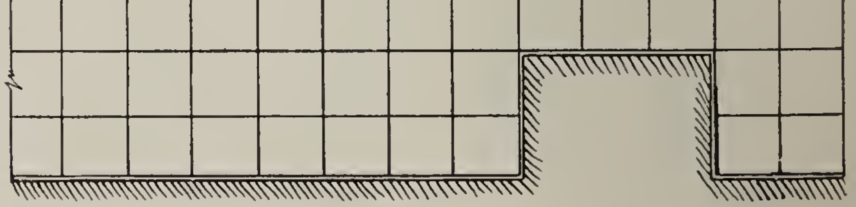
One of the leading clubs for men in Los Angeles, Calif., is the Sierra Madre. Its quarters consist of the three top floors in one of the city's largest office buildings, and the rooms that comprise them are quite generally conceded as presenting an interior scheme of finish and decoration that is worthy of study and favorable comment. The work, which is unique, artistic and well executed, is the result of the skill of W. C. Pennell, a prominent Los Angeles architect.

The principal rooms are particularly attractive. Brick and tile are used extensively throughout, and in the card room, the men's dining room and in the bar, the walls and floors are of these materials almost exclusively. Strong colors are employed, and the manner of handling them is a real work of art. Tile of rich colors produce a floor that seems suggestive of coolness in summer and warmth in winter. The walls, which are also of either tile or brick, naturally increase the effect. Moreover, an interior of this kind seems especially durable, and durability always constitutes an asset of the most-used rooms of a club. For these reasons, if for none other, it would be extremely difficult to find a more practical and attractive club interior than the one here referred to.

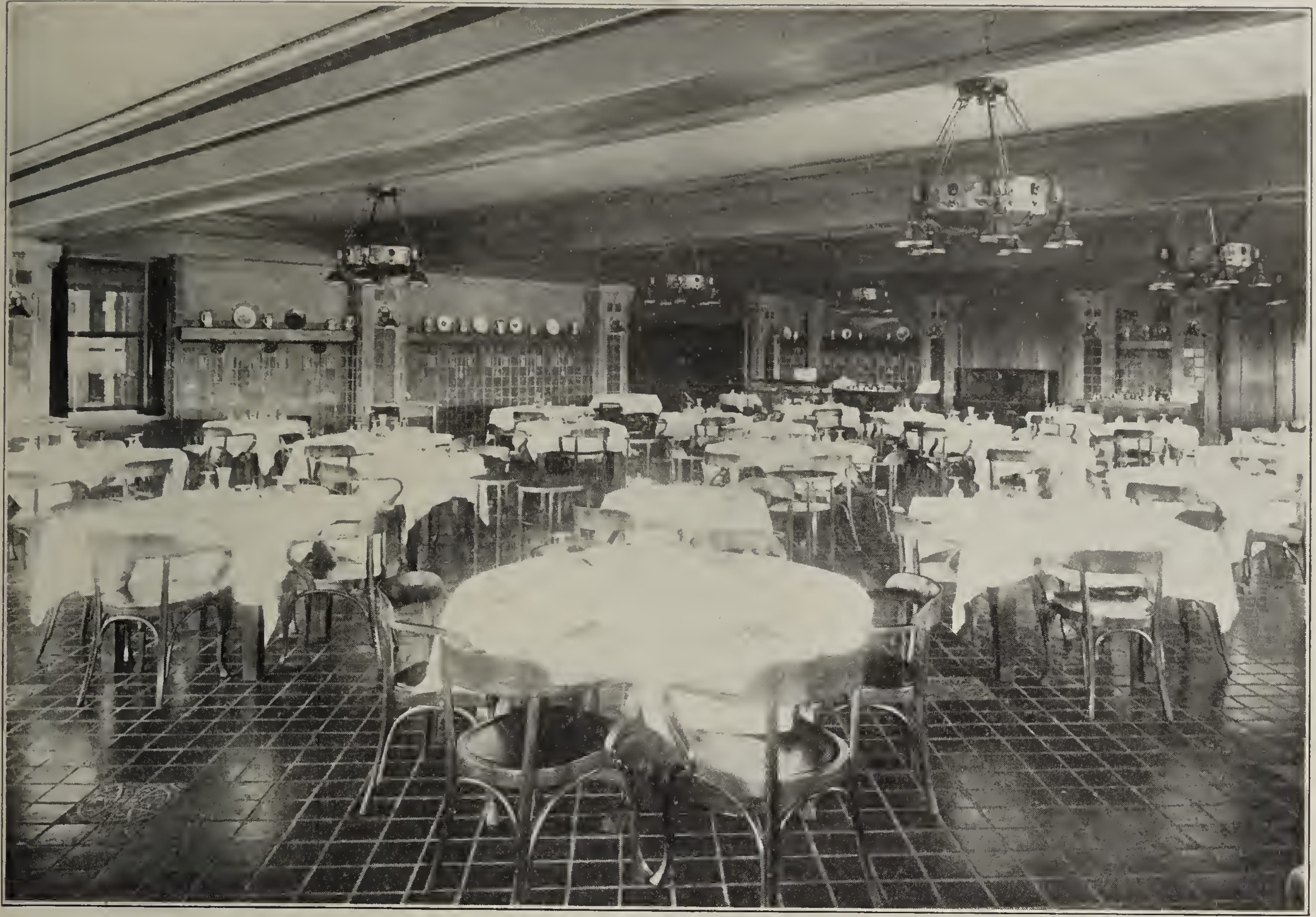
All of the principal rooms of the club, including the office, are located on the thirteenth floor. Stepping from the elevator at this floor, one is immediately confronted with a hint of the effect that is later discovered to prevail, with certain modifications, throughout the entire decorative scheme. The main corridor, which leads from the elevators to the different rooms, is floored with tile of brownish-red color; no carpet or rugs obscure it in any degree and the effect created is very attractive indeed. The floor space is bordered with four-inch quarry tile, edged on the inside with a single course of two-by-four-inch Grueby tile, and in the center of the area, eight-inch quarry tile are again employed.

The woodwork of the main corridor, as well as of all the rooms in which either brick or tile, or both, is used, is of oak, of a dull and rather dark finish—a shade that brings out the colors of the brick and tile in truly admirable style.

The card or smoking room is approximately twenty-six by forty-four feet in dimensions. This room shows a particularly interesting example of interior brickwork, especially when used in conjunction with tile. A course of eight-inch tile forms the base, and a few inches below the ceiling extends a sort of tile frieze, about twelve inches wide. The base is composed of a dull blue shade of tile, and the frieze is made up of dull blues, buffs, yellows and greens, worked out in somewhat conventional pattern, and forming a very artistic border. The wall space intervening between these two courses is composed of bright red pressed brick, of satiny surface, laid in dark blue mortar, deeply recessed. Bluish red tile, laid in attractive pattern, and includ-

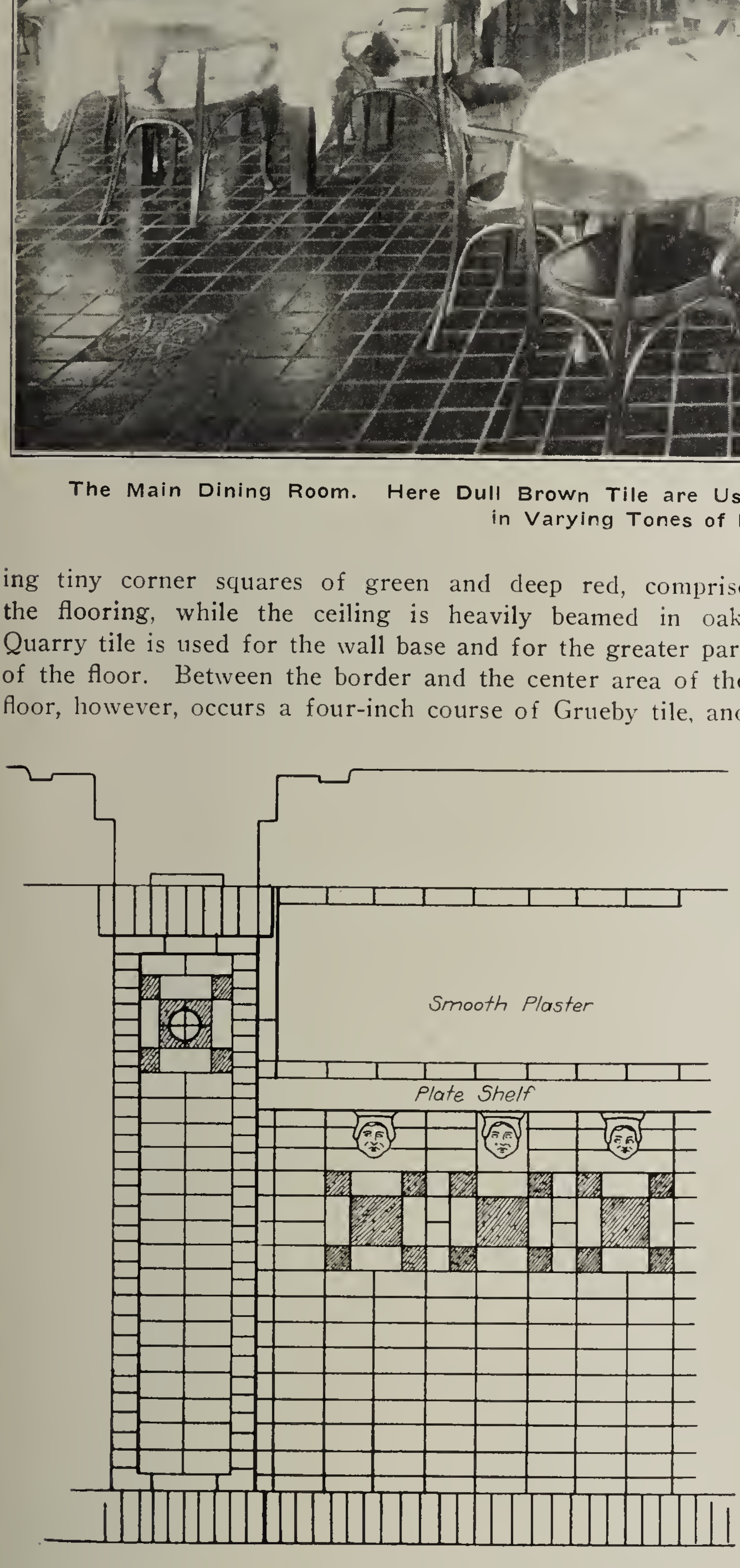


A Detail of the Tile Flooring in the Main Dining Room, Showing the Treatment of the Border as it is Laid Around a Pilaster



The Main Dining Room. Here Dull Brown Tile are Used for Flooring and a Cleverly Designed Tile Wainscot is Laid in Varying Tones of Red, Green, Brown and Buff

ing tiny corner squares of green and deep red, comprise the flooring, while the ceiling is heavily beamed in oak. Quarry tile is used for the wall base and for the greater part of the floor. Between the border and the center area of the floor, however, occurs a four-inch course of Grueby tile, and the corner squares are of similar tile, which also describes the quality of the tile used in the frieze.



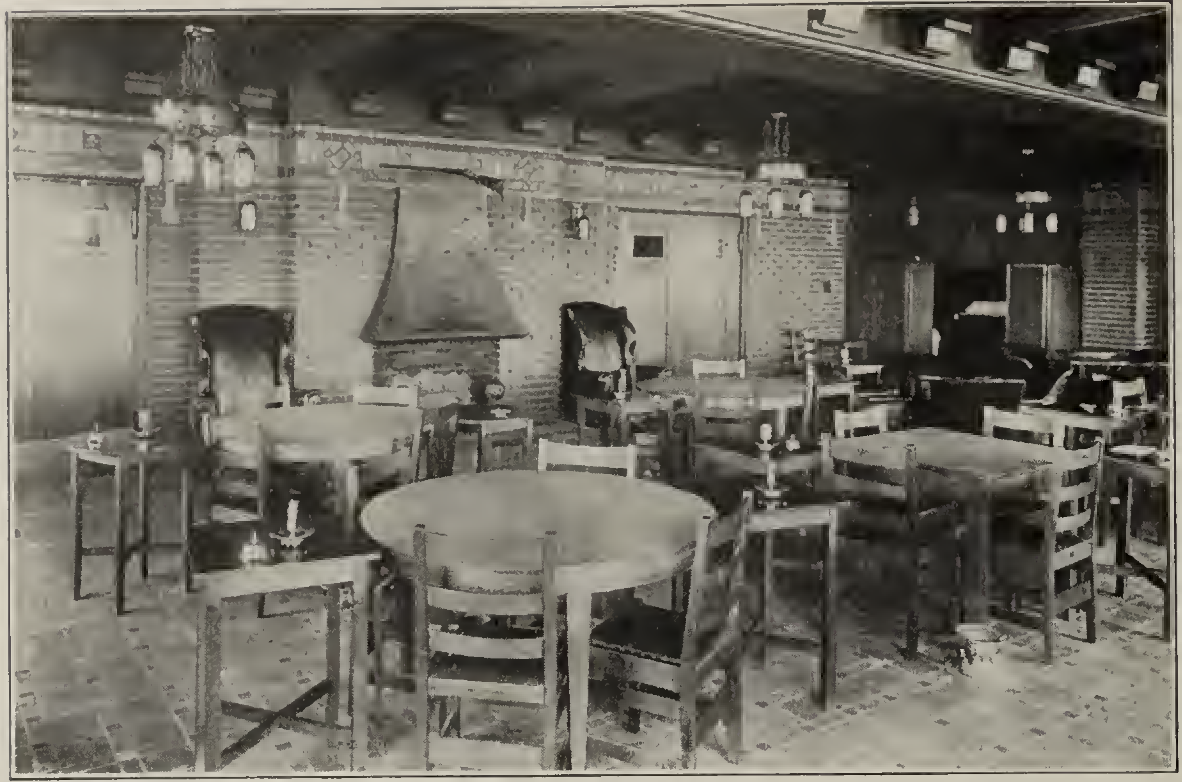
A Detail of the Wainscot

An especially delightful feature of this room is a large fireplace, which graces one of the side walls. Extending out into the room a few inches, it is faced so as to correspond with the walls of the room, and its deep hearth, constructed of tile and edged with dull brass, is elevated about eight inches above the floor. The hood is of hammered copper, in simple, graceful lines, and the andirons, as well as all lighting fixtures used in the room, are also of hammered copper,.

The bar room corresponds in general finish with the card or smoking room. This applies to both walls and flooring. The counter walls are naturally of brick, above a base course identical with that used elsewhere.

In the men's dining room tile is used for the walls as well as for the flooring. Eight-inch squares of dull brown quarry tile comprise the flooring, the border courses running parallel with the walls and the center area being composed of diagonal-running courses, studded at intervals with large medallion-like squares of Grueby tile.

Around the walls of the room, at a height of about six feet, extends a plate shelf, broken here and there with square pillar effects. Below this shelf the walls are finished with a tile wainscot, and above, between the wall pillars, are tile-edged spaces covered with smooth-surfaced plaster, which will later be decorated with hand-painted scenes in keeping with the general style of the room. The wall pillars are naturally composed of tile to correspond with the wainscot. Neutral tones dominate the appearance of the walls when viewed from a distance, but closer inspection reveals slight touches of distinct reds and greens, used in conjunction with different

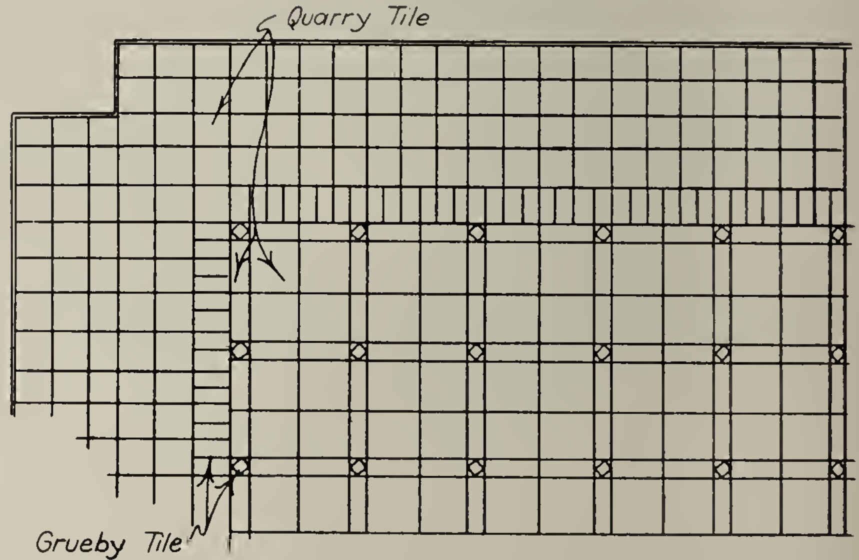


The Card Room, where Face Brick is Used on the Walls and a Combination of Quarry Tile and Grueby Tile for the Floor

shades of brown and deep buff. Grueby tile is employed quite liberally in the wall designs. This is an unusually attractive room in every respect, and the monk's heads which seem to comprise the plate-rail brackets give a sort of Bohemian touch to the whole that is particularly fitting. The room is approximately sixty feet long by forty-four feet wide.

While the club rooms are unusually attractive from a finish and decorative point of view throughout, brick and colored tile are used only in the portion of the interior mentioned above. White glazed tile, however, is used for the walls of the kitchen and for wainscoting in the bath rooms.

As may be realized from a study of the accompanying illustrations, brick and tile may be relied upon to create club rooms of both unusual attractiveness and practicability. Los Angeles has a number of clubs which have been giving considerable attention to the matter of making their quarters distinctively attractive, but none of them has succeeded more admirably than the Sierra Madre. Mr. Pennell has indeed created a real work of art, using burned clay as his material. In this connection, the thought comes to mind that the cities of the Pacific coast are achieving greater things in burned clay than those of the Middle West and East. This may be due to the excellent salesmanship of the men who handle brick and tile in that far western country, or it may be that the men who are building—the owners and lessees—are better capable of understanding the lasting beauty of these fire-created decorative materials. Due credit must be given the architect, but without the demonstration of the salesman and the open-mindedness of the man who builds, the architect would, in many instances, work with conventional materials in a conventional way.



However attained, there is a wisdom, coupled with a desire to try new things, that blossoms perennially on that slope which faces the setting sun—a wisdom that blooms with less frequency on this side of the Rockies.

Removing and Preventing Efflorescence

A subscriber, writing to the "Building Age" tells of troubles he has had in connection with brickwork's discoloring. He writes as follows:

"Last winter we had a job of brickwork, laying the face-brick in red mortar. The mortar froze and peeled out about a half-inch. We tried to repoint this work with red mortar, but the joint bleached out white, leaving the wall spotted. Will some of the practical readers tell us what we can use to make a uniform wall?"

One of the readers of the periodical mentioned goes into the subject rather deeply and the information given, if correct, will provide a means of effacing wall efflorescence and of preventing its recurrence:

"In my opinion efflorescence is the disease. It is a white powder that frequently disfigures the surface of brick walls in a moist climate or in damp places. The deposit generally forms in the mortar and will some time spread over the entire surface of the wall. Water absorbed by the mortar dissolves the salts of the soda, potash and magnesia contained in the lime or cement and spreads it over the surface. With lime mortar the deposit is frequently very heavy, and with natural cement it is much heavier than with Portland. The efflorescence originates in the brick if the latter was burned with sulphurous coal, or was made from clay containing iron pyrites. When the brick get wet the water dissolves the sulphates of lime and magnesia and on evaporating leaves the crystals of the salts on the surface.

"The surface may be rendered impervious by the application of one or more pairs of the Sylvester washes which consist of an alum solution made by dissolving 1 pound of alum per gallon of water and a soap solution made by dissolving 2.2 pounds of reasonably pure hard soap in a gallon of water. The brick masonry should be clean and dry and not colder than 50 deg. Fahr. The soap wash should be applied boiling hot, but the alum wash may be of 60 or 70 deg.. when applied. One wash should be put on and allowed to dry 24 hours before the other is applied. Three washes have long been used to render walls impervious, but instead of alum it is better to use aluminum sulphate, sometimes, but improperly called alum. It is cheaper than alum and only two-thirds as much is required.

"The efflorescence will gradually be blown away by the winds and washed away by the rains, but it can be entirely removed by scrubbing brushes and hydrochloric acid mixed with at least four or five times its volume of water. Before applying the acid the walls should be well dampened and after scrubbing well, washed with clear water."

Banqueting Six Hundred Engineers

In Dayton Ohio—The Flood City—Paving Brick Manufacturers Will Entertain Immense Body of City Engineers and Highway Officials

FLOOD-WASHED DAYTON will be the scene of the greatest paving-brick convention in the history of the world—that is, as history will be written this year. Not only will the National Paving Brick Manufacturers' Association be in session there the 11th and 12th of October, but on the latter date the American Society of Municipal Improvements will also be in session in the same city, and be dinner guests of the paving-brick men.

The American Society of Municipal Improvement has a membership of more than six hundred and this membership comes from thirty-eight states. Much of the future prosperity of paving-brick is dependent upon this society, since it is composed very largely of city engineers and other officials who have direct jurisdiction over street improvements. The establishment of a confidential relationship between the men who make paving-brick and those who have the selection of paving material is of immense importance, not only to those financially interested in the production of the brick, but to the great American public, whose money will be spent in the extension of American highways.

The city of Dayton, Ohio, has attracted much public attention, its fame being established before the great disaster it suffered by flood three years ago. It is notable among municipalities in that it is run by a manager. It has a notable manager in the person of H. M. Waite, former engineer of Cincinnati. Its choice as the scene of the two great conventions mentioned in the foregoing paragraphs is due, in part, to the efforts of its well organized and hardworking convention bureau, which has worked for more than a year to bring the brick manufacturers to the home city of the cash register.

The co-operative spirit of the manufacturer and the official using his goods is to be given a distinctive advance by the National Paving Brick Manufacturers' Association extending to the American Society of Municipal Improvements a complimentary banquet on the evening of October 12th. This is in accordance with the spirit of the times—confidence and co-operation in a mutual effort to serve public welfare.

The National Paving Brick Manufacturers' Association has always co-operated with the American Society of Municipal Improvements in the efforts of both to give to the public the best specifications under which brick streets are built. This occasion is of particular and peculiar interest to the manufacturers of paving-brick and there will be very few absentees among all the manufacturers at this meeting, as everyone connected with the industry understands that practically the entire interest of his own business is there.

The Greater Dayton Association will provide entertainment for the American Society during most of the week, a feature of which will include an inspection trip over the new brick roads which form a part of the system which the county commissioners of that county are undertaking. Enough of this permanent brick road system has been finished to impress upon the visitors the wisdom of building roads on the main thoroughfares that will not lay upon the county a burden of continued repair.

Both conventions will be held at the new Miami Hotel, a hostelry that has been open to the public less than a month, and which is said to be the best equipped hotel in Ohio, outside of Cleveland and Cincinnati. Ample accommodations will be provided for guests, and everything possible to their comfort will be arranged for by those who have the meetings in charge.

Further details will be published in the October 5 issue of "Brick and Clay Record." These preliminary paragraphs will serve to impress the dates upon your memory, and to give you ample notice, so that you can "put your house in order" and pack your grip, prepared to start for Dayton, Ohio, some time Sunday, October 10th, in order to be there, bright and early, Monday morning, the 11th.

Facts Favor Brick Sewer in Paducah, Ky.

The authorities of Paducah, Ky., who have a sewer building program under way, are in the midst of a contest between the backers of brick for that purpose and those who are contending that the right material to be used is concrete. The first bids received, one from Yancy and Johnson, of Paducah, who proposed to use brick at a cost of $49,361.68, and one from the Winston Brothers Company, of Minneapolis, proposing to construct a concrete sewer for $45,834.50, have not been acted upon on account of the inability of the city commissioners to reach a decision in the matter. Pursuant to the request of the commissioners, three petitions have been put in circulation by local brick manufacturers, asking the commissioners to accept the Yancy and Johnson bid, so that the sewers may be constructed out of Paducah-made material. Only five men out of the first seven hundred voters approached declined to affix their signatures to the petition.

Brick manufacturers have several effective arguments in favor of brick and against concrete for the new sewer. In the first place the use of concrete would be in the nature of an experiment in Paducah, the city's brick sewers having proved that the latter material is dependable, as shown by the recent report of a city inspector.

Furthermore, the acceptance of the Yancy and Johnson contract would supply a great impetus to Paducah industry and labor.

Support for the contentions of the brickmakers is contained in an address which the Paducah Manufacturers' Association has sent to the commission. In this the association pleads for brick, because its use in Paducah sewer construction has proved its dependability; because concrete construction in the Paducah section has proven "more or less unsatisfactory either on account of soil or climatic conditions;" because if brick is used, practically the whole amount expended on the improvement will remain at home and furthermore, the "Made in Paducah" spirit shown in the petition would warrant the commission in deciding for brick.

Before the first day was over one thousand names were obtained for the petition and continued progress was made later, showing that public sentiment is strongly in favor of brick. Those interested in seeing the sewer built with brick claim that they do not want to win through political influence, but solely on the merits of brick which, while it would cost more in the beginning, would prove a better investment. Facts, supplied by Mayor Wood, of Cairo, Ill., are cited. The mayor states that his city's brick sewers, which have been in service for fifty years, are in perfect condition today while, on the other hand, $20,000 has already been spent on repairs to certain concrete sewers constructed in Cairo just eight years ago.

The situation is being watched with much interest by brick manufacturers and dealers all over the state of Kentucky.

Frank Dunn Entertains at Conneaut

The Dunn Wire-Cut Lug Brick Company held its first annual outing at Conneaut, Ohio, Sept. 5 and 6, a number of manufacturers of paving brick, who are licensed under the Dunn patents, being guests of the company.

Charles J. Deckman, president of the National Paving Brick Manufacturers' Association, and several other well known Ohio and Indiana brick men were among those who partook of the hospitality of Conneaut.

Paving Brick Institute Changes Meeting Place

In an article on page 352 of the September 7 issue of this magazine, it was announced that the next meeting of the newly formed Institute of Paving Brick Manufacturers would take place at Alton, Ill., on September 22. It has since been decided to change the place of meeting from Alton to Galesburg, Ill. The date—September 22—remains unchanged.

Wants a Carload of Radial Brick

A prominent clayworking concern is in the market for a carload of six-inch and eight-inch radial brick for building kiln stacks.

If any of our subscribers are in a position to figure on this material and will so advise us, their names will be forwarded to the reader who has made the inquiry.

Burned Clay to Be Prominent at Building Show

Clay products will be well represented in the Complete Building Show to be held in Cleveland during February of next year. At a meeting of the show company Monday, September 13, space was taken for community exhibits of common-brick, hollow tile and paving-brick. In addition, many of the face-brick concerns will have individual displays.

The Farr Brick Company, the American Building Brick Company and the Barkwill Brick Company, of Cleveland, will combine to exploit common-brick. Their exhibit which will be in charge of Robert C. Mitchell, of the Farr Brick Company, will probably take the form of a small brick building, surrounded by a brick wall and terraces. Every use of common-brick will be visualized.

The Hollow Building Tile Manufacturers Association of America will also erect a building in their space, which will be hollow tile construction—stuccoed, faced with brick and of texture tile. Hollow tile floors, roofs and partitions will be included in this house.

Paving brick manufacturers will show a model highway of brick, also a series of walks, steps and porches built of paving brick.

Hudson River Brick Shows Expected Decrease

The annual report of the Hudson River brick making industry covering 1914 is about completed by the Geological Survey. In an advance bulletin on the subject, it is stated that there were 888,266,000 common-brick marketed in this region in 1914 at an average price of about $4.90 per thousand or a total value of $4,350,832. This was a decrease of 137,042,000 brick and of $1,285,299 from 1913. The New York portion of this district supplied 679,120,000 brick with a value of $3,283,399, or $4.83 a thousand, which was a considerable decrease from 1913. Of the counties Ulster led, reporting 186,381,000 brick valued at $896,306, or $4.81 per thousand. Rockland county, in which Haverstraw is located, ranked second with 131,076,000 brick, with a value of $642,267 or $4.90 a thousand. These two counties, therefore, reported nearly half of the production and value of the New York portion of the region in 1914 in which there were 109 firms operating, 24 in Ulster county and 23 in Rockland county.

New Jersey's portion of the production was comparatively small, being 209,146,000 brick during 1914 valued at $1,067,433, or $5.10 per thousand, less than one-fourth of the quantity and value of the entire district of the New Jersey portion, Middlesex county reported 164,340,000 brick, valued at $825,525 or $5.02 a thousand, nearly four-fifths of the total quantity and value, and Bergen county reported 44,806,000 brick, valued at $241,908 or $5.40 a thousand.

Building Methods and Materials in Brazil

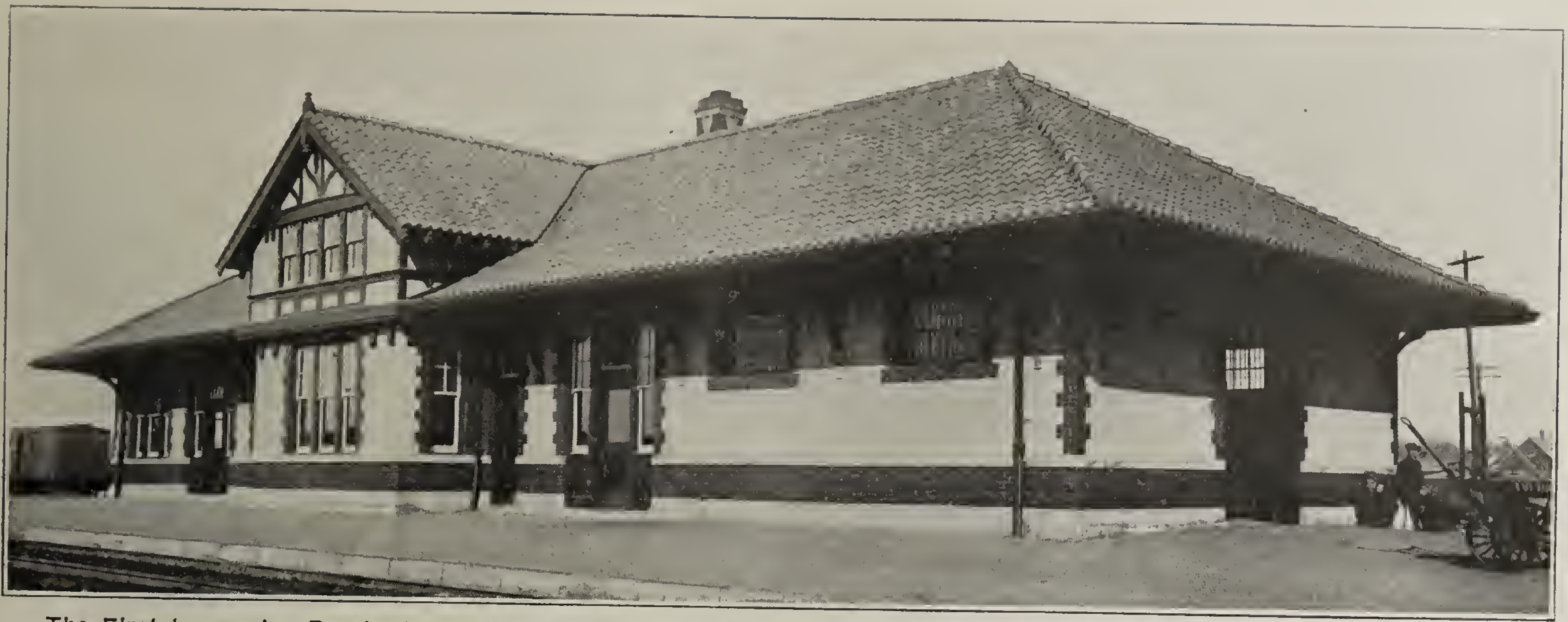
There is a growing interest in Latin America, particularly in its people and their manner of living. This increased interest has, no doubt, been promoted by and followed close upon our realization that the countries of South America offer a desirable market for goods "Made in U. S. A.," when certain obstacles now present are cleared away. In the light, therefore, of this new desire to know more about the people that inhabit that part of the continent that lies to the south of us, the following extract from a report of the American consul at Bahia, Brazil, may be of interest:

"The method of building construction almost invariably followed in Bahia consists of erecting walls of brick and rubble, plastered over with a mixture of clay and lime, and finished with a thin coat of lime, and sand. Floor and roof beams and floors and ceilings are of wood, and roofs invariably of semi-cylindrical clay tile of local manufacture. These are laid on transverse slats crossing the roof beams, and are generally visible from below. Interior walls are always finished as described, and are occasionally papered, but no wall board or any other material is used. Partitions are also made of brick.

"Accordingly to a local builder, the clay mixture referred to is prepared roughly in the proportion of one 400-pound cement barrel of clay to 10 gallons (two kerosene tins) of lime, and is often contracted for at 500 to 600 reis per square meter (10.4 to 12.5 cents per square yard) applied, including cost of labor and material. The top layer of sand and lime is often paid for by contract at about 800 reis per square meter (17 cents per square yard).

"Artisans here are generally negro and earn the following wages: Bricklayers from 3.5 to 6, carpenters 5 to 7, and helpers 1.5 to 2.5 milreis per day, the milreis now being worth about 25 cents.

"The cost of materials, however, is high, cement being today quoted at 24 milreis per barrel of 180 kilos ($6 per barrel of 397 pounds); lime, of domestic manufacture, at 13 milreis per 1,200 liters ($4.25 per 264 gallons); brick measuring 23.5 by 13 by 6.5 centimeters (9.25 by 5.1 by 2.56 inches) at $12.50 to $15 per 1,000; and lumber at $110 per 1,000 feet."



The First Impression Received by the Traveler Who Sees This Station is a Pleasing Color Contrast, Which is Created by Gray Stucco Walls, Red Pressed-Brick Water Table and Quoins and a Green Clay Tile Roof

Burned Clay Has New Outlet*

Railroad Architects, Discarding Perishable Frame and Monolithic Concrete Construction, Build Increasing Number of Stations With Hollow Tile Inner Walls and Brick Facings

DOES REAL BEAUTY have a place on the railroad? In the early days when the development of steam roads in this country was taking place with leaps and bounds, and when railroad speculation ran rife, this question might well have been answered in the negative. Then, every railroad building erected was extremely practical—temporary, rather than permanent structures were the rule. Now, however, there seems to be an entirely different sentiment among railroad officials and engineers regarding the place of the esthetic in the design of the many structures that mark the routes of travel. Graceful lines, striking color contrasts, and, above all, stability coupled with utility, are taking the place of the hard, straight lines and monotonous tones which have characterized the railroad buildings of by-gone days.

The traveling public is familiar with the imposing terminals and well-designed stations that are to be seen in nearly every large city. These buildings have cost, in many instances, large sums of money to erect. Neither time, thought nor energy has been spared to make them monuments of architecture and engineering. Conveniences without number make them inviting to all who travel. These massive and expensive structures, as has been said, are to be found only in large centers, where heavy traffic makes them a good investment. But how about the smaller town? Its station is to be seen by passengers very nearly as much, especially if it be on the main line, as the metropolitan depot, and surely small-town people are just as appreciative of good design as the inhabitants of our larger cities.

A railroad station in a town of medium size, which is worthy of note because of its very attractive design, practicability and economy, is that of the Chicago Great Western, which is used jointly with the Chicago, Rock Island and Pacific Railroad Company, at Mason City, Ia. This town has a population of a little over ten thousand, and is located in one of the richest agricultural communities of that great corn state.

The first impression received by the traveler who sees this building is a pleasing color contrast, which is created by the gray stucco walls, red pressed-brick water table and quoins and a green tile roof. To this is added the rich brown color of the exposed timbering, which makes altogether a very pleasing appearance. The design of the building has a touch of the English in it, with its half-timbered dormers, having curved and straight members.

This structure is 32 feet wide, 107 feet long and measures 27 feet from the grade line to the top of the roof. Upon the foundation are laid eight-inch walls of hollow clay building tile. The exterior covering of these walls, as has been mentioned, is of brick and stucco, the latter being applied directly to the surface of the hollow tile walls. The roof is covered with Spanish dull green roofing tile with Mission eaves and drained with ingot iron gutters. After the roofs had been made ready, one thickness of two-ply felt was laid parallel with the eaves and lapped over all valley metal four inches and laid under all flashing metal six inches. This felt was laid with a two and one-half inch lap, secured in place with capped nails. Before the metal valleys were put in place, one layer of felt was laid the entire length of the valley. The tile was then placed over this felt and fastened with 1½ inch copper nails.

The interior of the station is well laid out, and combines attractiveness with serviceableness. The main waiting room is at the north end of the building, the ticket window being in this room. Red pressed-brick forms the interior decoration of this room, extending to what might be used as a picture moulding, where it is met by the edges of an elliptical beamed ceiling. The floor of this room is covered with art marble tile, measuring twelve by twelve inches laid with three by three verde antique dots and a border. Rising from this floor is a ten inch sanitary base of cement. This type of floor was also laid in the ladies' retiring room, the toilets and men's smoking room. The interior trim and doors of the waiting room are of white oak, being varnished. Three eighteen-foot double seats constitute the furnishings of this room which, as is usual in a railroad station, are very simple and plain.

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The Walls of the Waiting Room are Faced with Smooth Brick of a Dark Red Color

Leading off from the main waiting room and in the east bay, of which there are two in the center of the building, is the ladies' retiring room. The woodwork in this room is of oak, while the walls are attractively decorated. A table in the center, two settees against the west wall and six easy chairs add to the comfort of this room.

As has been mentioned, the smoking room and the toilets have floors of art marble. Rising from these floors and extending to a height of seven feet are wainscots neatly paneled with vertical "V" joints spaced eighteen inches apart, above which the walls and ceiling are plastered and painted, the plaster being applied directly to the tile walls, without the use of the usual grounds. The trim in these rooms is of oak, which is varnished.

At the extreme south end of the building is located the baggage room. The walls of this room are not plastered, but the hollow tile walls have been left exposed, the surface of which is painted. The ceiling, however, is plastered. The woodwork in this room is of clear, shortleaf yellow pine, which has been painted three good coats of lead and oil.

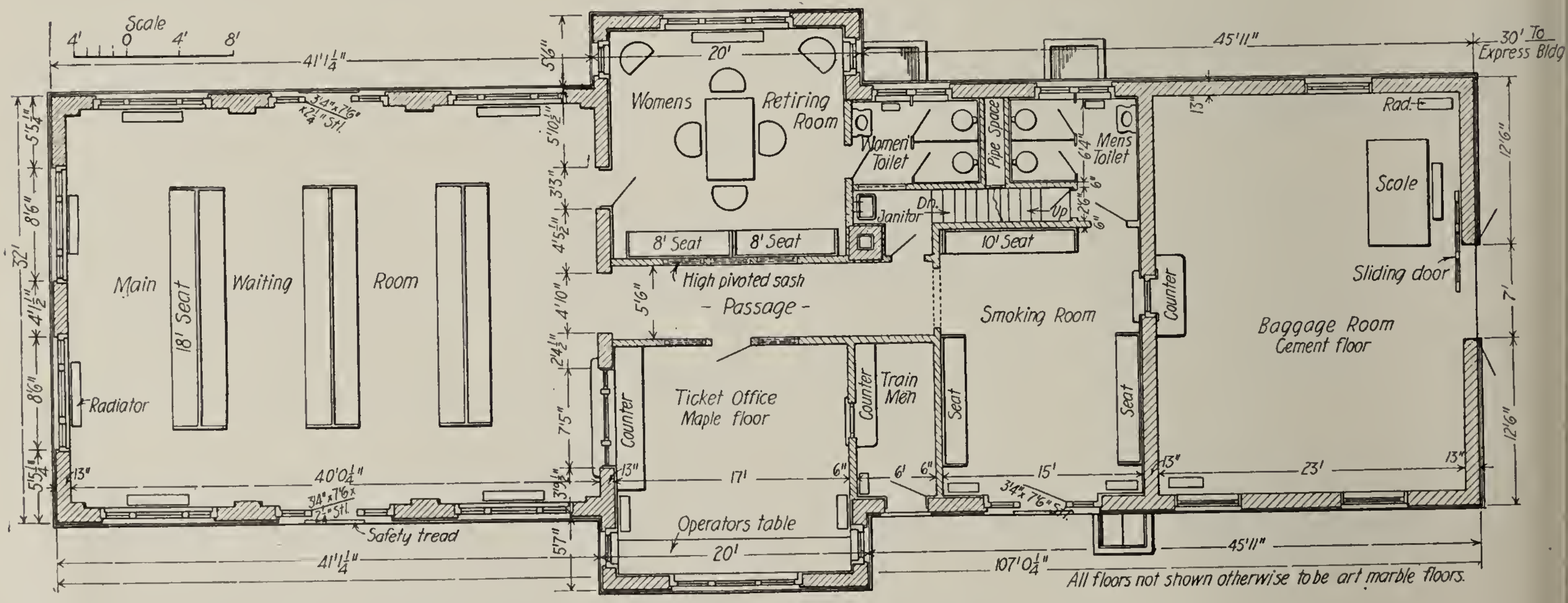
The building is heated with steam, the boiler room being located in the basement, where it is surrounded by fireproof walls.

This station was built in connection with other improvements at Mason City, and cost in the neighborhood of $23,000, a figure which the engineering department considers reasonable and profitable for the type of station that was built.

The fact that money was saved in the construction of this building may, in part, be due to the use of hollow building tile, which constituted the walls, and which, it has been proven, is the cheapest form of masonry. But low cost is not the only attribute of this material, for, because of the insulating power of the air cells in the tile, it makes a building which is easily heated in winter with a minimum expenditure of heat, and in summer it makes a more comfortable place in which passengers may wait. This same insulating feature is also responsible for the fact that hollow tile makes a wall that is thoroughly dry at all times, due to the absence of condensation which is usually caused by warm inside air striking cold walls, which have been made so by a lower outside temperature and a wall that easily conducts temperatures. Air being a greater insulator than a solid material, the tile acts as a barrier to the passage of either heat or cold through it.

Something regarding the load-bearing ability of the tile, which is often called into question, may be of interest in connection with this station. The specifications state that the crushing strength of the bearing area of the tile shall not be less than 600 pounds to the square inch of bearing surface, a load which is far below that which ordinary hollow tile can carry. In fact, it is not uncommon for tile to have a load bearing ability of 1,500 pounds to the square inch, with a large margin of safety.

Taking everything into consideration, the Great Western has secured a model station at a saving in cost—one that will last for a good many years with little or no repairs, and no exterior painting, except possibly an occasional varnishing of the exposed timbers in the dormers.



The Floor Plan, Which Shows a New Arrangement for Station Interiors

Knocking the Knocker

Being a Collection of Red Hot Thoughts Anent the Man Whose Selling Methods React Upon Himself and His Calling

EDITOR'S NOTE: *Mention has been made in these columns of the folly of selling by elimination—which has been explained as the practice of finding fault with every material competitive with the one that you are selling and giving, or trying to give by inference, the idea that, since no charges have been brought against your material, it is indictment proof. Here another phase of crude selling methods is shown. Not being able to decry the material a competitor is selling, the "knocker" runs down the man who represents the rival house. A splendid thought is contained in the last paragraph—but it is well to read right through to it—not "skip" to see what it is.*

By Thomas H. Owen

A KNOCKER IS A MAN who will try to belittle and discredit a competitor as a means of securing some advantage for himself. His method is one of unfair comparison. He is a product of disability and disappointment and a friend of disorganization. His methods are illogical. He makes no social friends because he is unsympathethic and he makes no business friends because his every opinion is biased.

In business he fails to make any success and learns to dislike his work; he hates his competitors and simply tolerates those of his business associates who do not come into competition with him. By the constant feeding of his hate worm, he finally gets to a place where he hates himself.

No longer able to live in harmony with regular business men he becomes a chronic lecturer on the inequality of things and people, and is an exponent of the immediate distribution of the wealth and property that other people have gotten together by hard work and a half decent disposition.

What can be the end of such a person? He cannot go to Heaven because he would insist that the golden streets are not gold, or at least, not of the high caret called for by the specifications. He cannot go to the other place because his favorite pastime—which is "giving 'em Hell," is done in a much better way by the party who runs the place. Therefore the only place left for him is on earth and on earth he must stay; and he is ever active—you will meet him at every turn.

As applied to the brick business, time after time you will find that the order you considered "cinched" has slipped away from you, or, if not altogether gone, is in danger of a hurried departure. In that case you may be called by your client and asked to explain why you lied in stating that you could make shipment in a given time; or why you sold John Smith shade "X" and shipped him a combination of seconds from shades that you never mentioned.

Perhaps you will be asked why you stuck Bill Jones $18 per M. for brick that you are ordinarily willing to sell for half that price, etc., etc., and finally you will have to explain why it is you have kept out of prison as long as you have and how now you have the sublime gall to ask a man for an order of 10,000 brick for the only house he ever built and ever expects to build.

And all of this will be because he has learned (from our friend, the knocker) that you have never kept a promise in your rascally life—that your greatest pleasure lies in skinning people who have saved and skimped and gone hungry that they might build a modest home for themselves.

Yes, the knocker certainly does stir things up. Possibly you have spent time and money enough on this little job to eat up all the profit there is in it. Now you must go to work and sell it all over again; and you are in worse position than you were at the beginning, for then your client was willing to assume that you were honest. Before you can "talk business" to him now, you have to convince him that you are at least honest from policy and that you work for a regular company and that you have on some occasions shipped brick that were accepted and paid for by the buyer without a law suit. If you can get up to this point and keep your temper, you can possibly in time convince this client that you can and will take care of his order and ship him the brick he selects, providing he keeps his eyes open and is reasonably lucky.

In getting this order the first time, you spent as much as the order justified. In getting it the second time you spent some more time and more money, so that the order was bound to net a loss to your company the moment the knocker appeared on the scene.

Incidentally, his work, while it produced a loss for you, gave neither the buyer nor the knocker any profit. It was a complete economic loss. In fact, some loss also came to the knocker, for he can never go back to this client—unless your service justifies his original statements concerning you. But he can, and does, go to new listeners, day after day, increasing your expense and wearing you out, bodily and mentally.

Yet we cannot but recognize that we are to blame for the condition that permits the knocker to exist. We know that he is the product of the poor and half-dishonest business methods of generations of brick makers. But this we need not analyze. What we seek is something to forever rid us of the man who knocks in order that he may live.

The brick manufacturing business is a real business. It requires the investment of large sums of money and a high degree of personal ability. It calls for skill equal to that employed in a hundred other lines; yet it does not have the same dignity or enjoy the same standing as any of these other lines where the investment in money and ability per unit is not nearly so large.

The banker who will smile with pleasure as he makes you a loan with steel stock as collateral, would laugh with derision and throw you out should you ask him for a loan with stock of the majority of brick companies as collateral. We often hear of a retired coal man, and steel man, and men in other lines of business, but the only way the poor brick man ever retires is through the sheriff.

There is no business where the need of co-operation is so great as in the brick business. The coal man can sell so many tons of coal and he knows just where to get the coal and how soon he can make delivery. The steel man puts a certain combination in his furnace and gets a certain result; even the cement man is sure of his product, but the poor brick man has to overcome obstacles that Nature has put in his way with elements that are, to say the least, mighty uncertain.

He is the victim of machinery—the design of which (or lack of design) and construction is a source of constant annoyance and expense to him.

He is always in trouble with his labor—for a brick yard is the last place the ordinary laborer wishes to work, particularly in summer. So when the demand for brick is greatest, the man who owns a brick plant usually has to slow down on production for lack of labor.

With the brick finished and in stock for shipment he is up against the selling proposition. He is not received at the architect's office or the builder's home with the same welcome as is given the hardware man, the plumbing .supply man, or the decorator—he is only received as a necessary evil and is looked upon with suspicion; his guarantees are looked upon as worthless and his promises are considered as made only to be broken.

The stumbling blocks that Nature has put in the path of the brickmaker can be, and are being overcome by the application of scientific principles to the ancient art of brickmaking.

The inefficiency of brickmaking machinery—its tendency to break down and need repairing—is being overcome by the introduction of better designs and better metal in the parts that receive the greatest wear.

The labor problem is being helped by the introduction of automatic carriers, automatic off-bearing machines, automatic conveyors—devices that are rapidly placing machinery to work where men have labored for the past fifty years.

The selling proposition is being helped by the adopting of selling ethics—one of these being worthy of a place in the Ten Commandments—"Thou Shalt Not Knock."

The man who knocks his competitor sets the low water mark upon the trade in which he is engaged. The listener takes the position of the little darkey who, having been called many things reasonable and unreasonable, said: "All them names you called me, *yo' is.*" The knocker who tells of his competitor's dishonesty writes himself a thief.

The country is dotted with dead and decaying brick yards that mark the financial graves of many a good and deserving man. The fitting epitaph for many of them would be "Murdered by the Knocker."

The way to rid ourselves of this loss producer is to first so weed our own gardens that he will have no basis upon which to build even the semblance of scandal. After that, let us watch ourselves, to see whether, or not, the knocker lives in our own house—rather than next door.

U. S. Government Gives Brick an Official Endorsment

A rapid increase in the mileage of vitrified brick roads in this country is predicted in a new bulletin of the United States Department of Agriculture. Such roads, it is said, possess three distinct advantages. First, they are durable under all traffic conditions; second, they afford easy traction and moderately good foothold for horses; and third, they are easy to maintain and keep clean.

The cost of a brick pavement depends so much upon so many variable factors such as the locality, freight rates, and the distance from point of manufacture that it is not possible to make any definite estimates. The cost of the rough grading, however, should be considered entirely apart from the cost of the pavement, for the grading would have to be done no matter what kind of a road was to be built.

Paving brick should be uniform in size, reasonably perfect in shape, tough in order to resist crushing, hard in order to resist abrasion, and uniformly graded in order that the pavement may wear evenly. With good paving brick the crushing strength varies from 10,000 pounds to 20,000 pounds per square inch when the load is applied uniformly over the entire top surface of the test specimen. In use, however, paving brick is seldom called upon to withstand a pressure of over 2,000 pounds to the square inch so that this factor is not one of great importance.

Equally important with the character of the brick is the character of the road bed on which it is to be laid. The four essentials for the road bed are thorough drainage, firmness, uniformity in grade and cross section, and adequate shoulders. Where the first can be obtained in no other way it may be necessary to lift the road considerably above the surrounding land. Firmness is secured, if the road has been properly drained, by making certain that the road bed is thoroughly compact. The subgrade must be repeatedly rolled and reshaped until the desired grade is secured. The shoulders should never be less than four feet wide and not infrequently one is made sufficiently wide to form an earth roadway parallel to the brick pavement.

Strong, desirable curbing is necessary for all brick pavements in order to prevent the marginal brick from becoming displaced, which event would result in deterioration, finally spreading over the entire pavement. Properly constructed curbing, on the other hand, holds the brick together and enables them to present a combined resistance.

One of the most essential factors of a brick pavement is a firm foundation upon which to lay the brick. The importance of this is evident when one considers that the ability of pavement to resist wear depends upon the smoothness of the pavement and a firm foundation. If the foundation is poor one of the brick may be easily forced down and so cause unevenness in the surface. Where the traffic is comparatively light and the subgrade composed of material that does not readily absorb water, broken stone may make a satisfactory base. For heavier traffic or where the material composing the subgrade is at all unstable, a concrete base is necessary.

After the brick have been laid upon the sand cushion and the pavement gone over carefully to remedy all defects and remove all imperfect material, it should be rolled with a heavy power roller, gone over carefully once more, and the joints then filled with some material to prevent the brick edges from chipping. Of the various materials used for this purpose a grout made of equal portions of Portland cement and sand mixed with water is recommended.

In addition to the description of the various problems, the new bulletin contains in an appendix specifications for the construction of a brick road.

The Design and Construction of Down Draft Kilns

Being a Valuable Contribution to Clayworking Literature and a Guide to a Better and More Economical Practice of Burning Clay Wares

By A. F. Greaves-Walker

(Asst. Genl. Mgr. Sun Brick Co., Ltd., Toronto, Ont., Member American Ceramic Society, Member English Ceramic Society, Member Royal Society of Arts, Fellow Utah Academy of Sciences)

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(Concluded from the Sept. 7th Issue)

NOW THE QUESTION IS—is this loss preventable? It is, to a very great extent, by the use of modern engineering methods as applied to furnace construction and heat insulation. Almost every industry but ours is making a serious attempt to prevent excessive radiation. Inquire what the steel maker, the modern foundry man, the automobile manufacturer, the brewer, baker and packer are doing along these lines. Ask Henry Ford if insulating his numerous furnaces did not help him cut his cost and price last year. Even the clayworkers, or some of the wise ones at least, insulate their steam pipes, boilers and sewer presses. Even the furnace and heating flues or steam pipes in their homes are often insulated. *Why not the kilns?*

A. F. Greaves-Walker

INSULATING THE KILN WALLS AND CROWN

For a number of years, metallurgical engineers have been experimenting on furance walls, using various methods of construction and various materials. The dead air space or hollow wall has been thoroughly tried and found wanting. This is not due to the dead air space itself, for all successful insulating is based upon it. The trouble is that *large* air spaces are not efficient at very high or very low temperatures, such as are found in furnaces or ice houses. The air space must be infinitesimal in size in order that circulation may not be set up when there is a temperature difference between two of its walls or sides. Also it is impossible to prevent leaks into large air spaces from the outside or inside, under the conditions existing in a furance or kiln. Of course, this utterly destroys its usefulness.

It has been necessary, therefore, to find some material which had the properties of the hollow air space and would resist high temperatures, and at the same time would prevent the setting up of air currents. Several kinds of diatomaceous earth have been most successfully used, the one known as "Kieselguhr" being perhaps the best known. Most of this comes from California, where very large deposits exist. At the present time it is being manufactured into brick and blocks of standard fire-brick size and these brick are selling at a price only slightly higher than a good fire-brick. It is also used in its raw state in a furnace wall as is cork or sawdust in a fireless cooker or ice house.

One inch of this material has insulating qualities equal to *twelve inches of common-brick.* Therefore one brick is equal to twelve common-brick in thickness in a furnace wall. Numerous tests made in several of the University Laboratories show that a four-inch lining of insulating brick in a furnace wall *which is under constant heat,* will prevent 50% to 75% of the radiation. In a kiln it should be even greater, as it is heated up only periodically. Taking the lowest percentage of saving—50%—and using the figures the writer has given for the loss on a kiln of brick—the result is a saving of $9.75 per kiln. In actual practice it would undoubtedly be greater than this, but accepting it, you have a saving of $234 a year on a kiln turning twice a month.

Now what will such a lining cost? In no section of the country should a 4½-inch lining of this material for a 30-foot round kiln, cost to exceed $100 and in some sections not more than half this amount. As it will replace an equal amount of common-brick and the wall will be built considerably thinner, it can be conservatively figured that from $30 to $40 worth of common-brick will be replaced. This makes the cost of the lining from $60 to $70, an amount that will be saved inside the first year, figuring only the saving on heat loss. To this must be added the increased speed in burning.

Fire-brick is often wasted in a kiln. Where temperatures not exceeding 2,000° are used, as is often the case, it is not necessary to use nine inches of good fire-brick. Four-and-one-half inches is quite sufficient. Seldom do you find the fire-brick lining in a kiln touched, except over the eyes, even where very high temperatures are reached. In a round kiln it is not necessary to tie the fire-brick lining to the common-brick, as in this case the lining may expand and contract without reference to the main wall, and it is much easier to repair.

In such a kiln the shape will prevent it from pulling away if the brick are laid well. If the lining is tied in, it should be laid alternate headers and stretchers, or not to exceed two stretchers to each header. Greater spacing of the headers leads to their being broken off by the expansion, leaving the lining free. In a rectangular kiln it is always necessary to tie the fire-brick to the backing.

In a round kiln which is uninsulated, the proper depth of the fire-boxes must be considered in determining the thickness of the wall. For the best fire-box results it should not be over forty inches. The walls of rectangular kilns when uninsulated should not exceed forty-eight inches in thickness. When insulation is used, the round kiln wall may be twenty-seven inches and the rectangular kiln walls thirty-six inches. When possible, use porous brick in the interior of the wall, as they are better insulators than hard ones. It even pays to make up porous brick for this purpose by mixing a portion of sawdust or coal slack with the shale or clay.

KILNS RUINED BY POOR BRICKLAYING

Too little importance is given to the laying of the common-brick in kiln construction. The writer does not think it would be far wrong to say that *more than half the kilns built are practically wrecked within the first five years* through poor workmanship. Little or no attention is paid to the proper tying together of the wall in an endeavor to make it act as a unit, and also very little attempt is made to allow for any expansion. Poor mortar is very often used and it is almost the rule to avoid the use of cement mortar. Ordinary lime mortar, as mixed by brickyard labor, is totally unfit for kiln construction. A 3 to 1 cement mortar with 10% lime putty added, is practically unequalled for this purpose. The wall should be thoroughly bonded together and every precaution should be taken to prevent the masons from filling up large cracks and holes with mortar. The use of chips and small pieces of brick should also be avoided.

Various methods, some of which are theoretically good, have been devised to allow for the expansion of the walls and floors. In most cases, these, in actual practice, are very poor. Any expansion joint which can become filled with sand, mortar or chips, will only help to wreck the kiln. Allowing for the expansion in the vertical joints, by means of a mortar joint of the proper thickness is unquestionably the best method. This applies to both fire-brick and common-brick, *and necessitates the use of the trowel throughout.* In fact, the variation in shrinkage in fire-brick practically requires that the mud be applied with a trowel. This does not necessarily mean that the joint should be thick, for if it is made thin and each brick malleted down to a level, a far neater and more serviceable job can be gotten than by dipping. Furthermore, no more time is consumed in the laying.

THE IRONING OF KILN WALLS

Ironing of kiln walls is a question that is too often given too little attention or ignored. This is probably due to the fact that up to the time Prof. Harrops' article was published early this year, practically no data was available on the subject. It was simply a case of judgment or observation. You can find types ranging all the way from those tied up like a sore thumb with wire rope, or supported with log buckstays, to those sheathed with steel over the entire surface.

There is little good judgment in spending from $2,000 to $5,000 on a kiln and then for the sake of saving $100 or $200 cutting off from five to seven years of its life by skimping on the iron work. No matter how careful you may be in the construction of your kiln, if you do not sufficiently band or iron it, it soon becomes uneconomical. Cracks in the walls soon appear, through which large volumes of cold air get into the kiln, and in a few years it may become so racked as to become practically worthless.

STEEL SHELL KILNS

For round kilns the steel shell is unquestionably the most efficient. It not only holds the brickwork absolutely in place, but cracks positively cannot open up. Add to this the fact that the shell is a good non-conductor and you have a list of favorable arguments that insure a good kiln throughout its entire life. There can be no question but that the steel shell kiln will give—in fact has given—far longer life than is possible in any other type. There is only one argument against it and that is first cost.

Next to the steel shell would come the kiln which is banded so as to catch every course of brick. This also is expensive, about as much so as the steel shell. It is necessary then, to consider the minimum amount of ironing necessary to keep the kiln in good condition. Using Harrops' method of calculating the size of a crown band necessary on a 30-foot round kiln, it is found that one band 6 in. x 1/8 in. is quite sufficient. However, the author has always considered the practice of using two bands at the crown seat good. Crown bands, especially light ones, sometimes break, and if two are used, one may break and still do no damage. The author, therefore, figures on two 6 in. x 1/4 in. bands set three inches apart at the crown seat. Below them, one 6 in. x 1/4 in. band is set at the furnace arch, just catching the top of the arch brick or block. Central between this band and the lower crown band is set another of the same size. Under these bands and spaced 9 inches apart, vertical slats 4 in. x 1/8 in. should be placed, extending around the kiln. These slats should be caught firmly under the lower crown band and the bottom band. Above the crown bands two 4 in. x 1/8 in. bands should be placed, but no slats are necessary. In a round kiln, with furnaces of the proper proportions, the distance between the furnaces is comparatively so small and the opportunity for expansion in all directions so large that irons are unnecessary to prevent deformation. Care however, must be taken to have the brick work particularly good at these points or poor results will follow.

IRONING RECTANGULAR KILNS

For ironing rectangular kilns 10 in. standard I-beams should be placed between each fire box, also two at each end. At the crown seat two sixty pound rails or one standard 8 in. channel should be set into the wall. At each end one rail or smaller channel should be placed at the same height. Below these, and in the same positions as described for bands on a round kiln, 50 pound rails or 6 in. channels should be used. Rails, when used, should be set with the bottom out.

The I-beams should be tied together with 1 1/4 in. rods across the crown. It is very important that these rods should always be kept tight enough to "sing" when tapped with a hammer. Many crowns are ruined by allowing these rods to slacken and remain loose. They have a bad habit of constantly stretching and require careful watching. A rectangular kiln crown is most liable to injury when cooling; during the firing period the rods are stretched and when the kiln cools down they do not return to their former length, thus allowing the crown to settle slightly after each burn. This soon results in a dangerous or wrecked crown.

THE KILN CROWN

The subject of the proper design and construction of a kiln crown is important also. If the clayworker can do away with the high cost of crown and furnace repairs, he will have very little to worry about as regards kiln upkeep.

Authorities agree that a down-draft kiln should have a life of fifteen years, i.e., it should not be necessary to rebuild the walls and crown during that period. The vast majority of kilns, without doubt, require at least two crowns during that time. There is something wrong then with the design or construction, or both.

It is on the smaller rural yards that are found the most glaring cases of poor crown design. These are generally too high, being built on the "hay stack" principal. On the larger plants, the writer has found the failures to be not so much an account of design, but principally due to poor construction.

CROWN SPRING ACCURATELY DETERMINED

The proper spring or circle of a crown for both round and rectangular kilns has been very accurately determined by experiment, although it is quite apparent in looking around, that many clayworkers do not take the trouble to find out what it is. For a round kiln it has been determined that the distance from a line drawn through the points where the crown springs from the wall to the top of the inside of the crown should be one-fourth (¼) the diameter of the kiln. For a rectangular kiln this distance is one-third (⅓) of the inside width. These figures have not only been determined as the best for obtaining a crown with the longest life, but also as the best for burning results. It is a well known fact that a kiln with a high crown consumes more fuel per unit of ware, takes longer to burn and gives poorer bottoms than one with a lower crown. If the crown is too low the top ware is very likely to be over-burned or the capacity of the kiln decreased in an effort to avoid setting too close to it.

A question considerably discussed in recent years has been as to the proper method of starting the crown off the walls. There can be no question but that the skewback has dropped out of use to a very considerable extent, being replaced by an arc of a circle of very small radius up to the point where the proper circle of the crown is reached.

Harrop, in discussing this subject, proved that theoretically, the crown started on skewbacks exerted less total thrust on the crown bands than did crowns the other type, but that the thrust was exerted along a single line. In the case of a crown started from an arc, while the total thrust may be greater, this thrust is distributed over an area equal to the entire height of the starting arc, and at any given point is comparatively small. On a round kiln, should the crown bands break in the case of a skewbacked crown, the entire thrust of the crown is exerted along the line of the bottom of the skew with nothing but the friction of a single mortar joint to stop it from shearing off and causing collapse. However, where the arc is used, all of the backing, (which in this case is particularly heavy and should be well tied together), from the point where the crown starts to the top of the arc, must be pushed out before collapse can take place. Moreover each brick in the arc is really a skewback and we therefore have the total friction offered by a number of mortar joints instead of a single one.

So far as actual practice is concerned, a number of instances have been reported where the arc has been used, in which crown bands broke under fire, and the crown did not suffer at all. On rectangular kilns it is harder to justify the use of the arc, but in this case also, it seems more reasonable to distribute the thrust over a large area of backing wall than to concentrate it on one point.

Another important part in starting a crown. *Instead of supporting the crown on the fire-brick inner lining, it should be set back on the main wall.* Everyone has noticed that crowns invariably crack badly over each fire-box. This is partially due to the greater expansion over each eye and partially to the continued burning away of the lining at this point. Also it has been noticed that when it is necessary to repair the fire-brick lining over the fire-boxes, a portion of the crown often comes down during the tearing out process. If the crown is set back off of the lining and is entirely independent of it, most of the trouble will be overcome.

In building the crown of a rectangular kiln, the use of forms and lagging makes the obtaining of the proper circle easy. In round kiln construction several methods are used to obtain the correct circle. The accompanying plate (Plate 6) shows a very simple one. One of the best features is that if a course of brick slips from its proper place, it must be put back before the guage will revolve. This prevents the mason from "slipping something over" when the superintendent is not around.

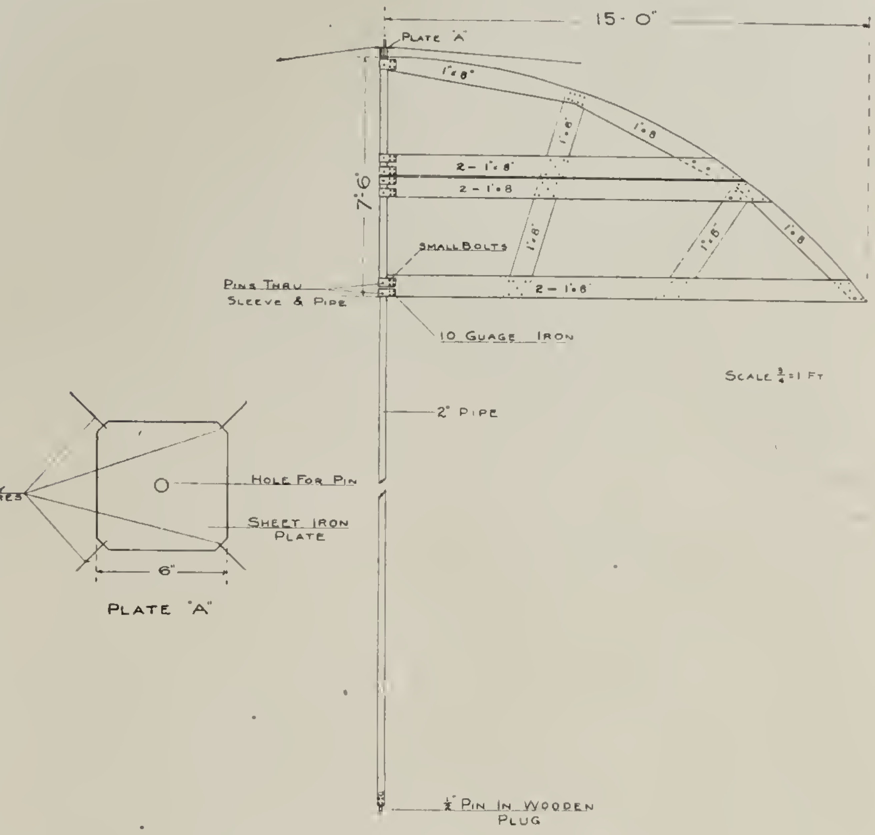


Plate 6—Thirty-foot Kiln Sweep

Designing a theoretically perfect crown will by no means give good results unless the workmanship is first-class. Even a poorly designed crown, if carefully built, will give long years of service. To build a perfect crown, there should be no variation in the shrinkage of the fire-brick and they should be dipped and malleted into place. In fact, where careful work is done in metallurgical furnace construction a minimum variation in size is demanded, often as low as one-sixteenth to one-eighteenth of an inch. With such brick, perfect work can be done with dipped brick, but it is almost pitiful to see some clayworkers attempting to use the fire-brick ordinarily sold for kiln purposes, in this way. And it is even more pitiful to see the crowns that result, not only when finished, but shortly after, when the brick begin to fall out or the crown begins to sag in spots.

By far the best job under average conditions, can be done by using the trowel and malleting the brick to a level coursing, at the same time using the smallest amount of mortar possible.

In the case of a round crown, each course should be keyed tight with a *driven* key. In a rectangular kiln the courses should be brought up to a point where the key will go about half way to its seat with the pounding received from a wooden hand mallet. It should then be forced home with a sledge hammer and wooden block. If more attention is paid by the superintendent or engineer to the keying up, much money and trouble will be saved through the longlived crown that will result. It is a job that should never be left to the mason's judgment.

Vent holes are sources of weakness in a crown. They should not be used, except at the top.

Rectangular kilns, up to fifty feet in length, require only

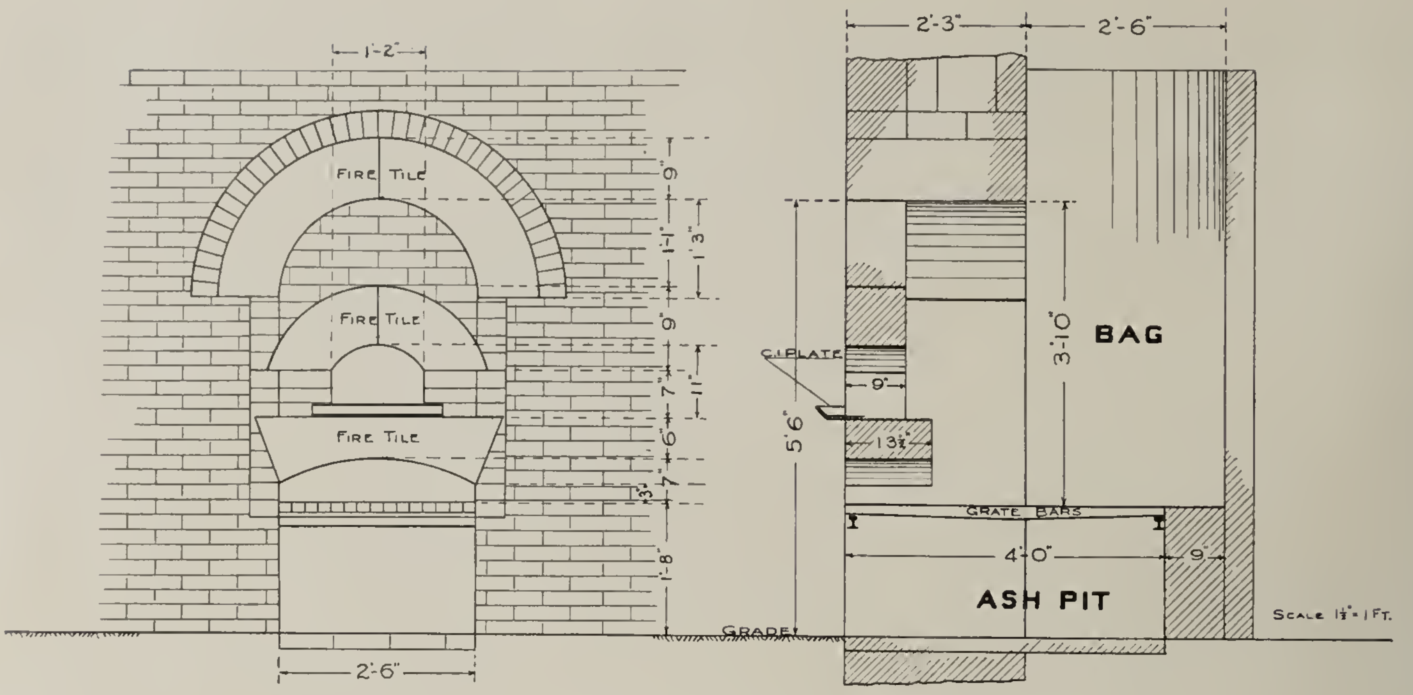


Plate 7—Fire Box

one expansion joint at each end and none in the middle. Over fifty and up to one hundred feet, an additional joint should be left in the middle. Expansion joints in crowns are invariably sources of weakness. The covering for an expansion joint should always be "built in" when possible.

The insulation of the crown is a matter well worth considering. Why a clayworker will build a four to six foot wall to prevent excessive radiation and then put a two inch lagging on a nine inch crown is a question that has no answer. Crowns can and should be insulated. If a thirteen inch wall is carried up from the base of the crown to within eighteen inches of the top and the space filled and tamped with fine, burnt out ashes, a very good insulation will be secured. Over this filling a lagging of brick should be laid and this covered with a coating of lime-cement mortar. Burnt out ashes, especially the light fluffy kind, make an excellent insulation and are generally procurable on a clay plant. Unburned carbon should always be removed.

FURNACES

The writer is well aware that this is a subject the gods themselves cannot agree on, and is not going to attempt to convince anyone that any particular type is the best. There are many good ones, when used under the proper conditions. The one described was selected after observing a large number, as being one of the best types for average conditions—fuel, labor and material considered.

A furnace to be adaptable to the average clay plant must be, first—so designed that it will properly combust ordinary or low grade fuels; second—capable of being efficiently handled by the average laborer; third—easy to control and to produce either reducing or oxidizing conditions; fourth—have a low up-keep. This is a pretty large order for any fire-box and the writer does not hesitate to say that most furnaces fall down on one or more of these propositions.

A very important item in kiln design is the ratio between grate area and kiln floor area. There are very definite limits to this ratio and if best results are to be obtained they must be observed.

The upper limit is *one foot of grate area to four feet of floor area;* the lower, *one foot of grate area to eight feet of floor area.* Observation of many of the best designed kilns on the continent lead the author to believe that a ratio of 1 to 7.5 is the best for average conditions. For the burning of fire-brick the ratio should approach the upper limit—1 to 4—while for handling a clay with a short vitrification range, the lower limit would be best.

For the best results in salt-glazing the limits should be confined between 1 to 6 and 1 to 8. In the great majority of cases 1 to 8 ratio is the best. In going below this point, dull ware will likely result, while to go above 1 to 6 generally means blistered, pimply ware, or at least a considerable percentage of it.

The higher the grate area—floor area ratio—the greater the care required in handling the kiln, especially near the finish of the burn, but increasing the grate area will invariably give greater burning speed.

Plate 7 gives an idea of the furnace suggested. It will be noted that the grate bars are easily gotten at, and that the furnace is easy to clean and therefore likely to be popular with the firemen. It requires no doors, yet can be absolutely controlled, as a couple of shovels of slack will effectually close the feed hole, or it can be left partly or entirely open. It is so simple as to be very easy to keep in repair.

Especially should be noted the distance from grate bars to top of arch. This is important in any kiln furnace. Plenty of room is necessary over the fires if the necessity of constant repairs to the arch are to be avoided. A low fire-box confines the heat and heats up the kiln walls instead of the ware: a high one allows it to get into the kiln where it belongs.

Every clayworking plant wastes hundreds of dollars each year replacing furnace arches built of brick. If these arches are built of fire-clay shapes or blocks, this trouble will be eliminated and furnaces will stand for years without attention. Such shapes cost very little more than the equivalent in brick and are carried in stock by many of the fire-brick plants catering to the clayworker.

BAG WALLS

A word in closing about bag-walls. There are really not many types to select from. It is merely a question of round or square—high or low. The question as to whether a high or low bag is best, is one that must be decided according to conditions. It may be necessary to build a high bag to protect the ware from flashing; to throw the heat more to the center of the kiln; to prevent the ware from being drawn into the fire-boxes or to prevent melting.

So far as shape is concerned, the author does not think there is much question but that the semi-circular bag gives the longest life. In brick kilns, where the setting is run up tight against the bags the semi-circular type offers far greater resistance to crushing and the pull of the fires than the rectangular, and furthermore it is the most economical so far as floor space is concerned.

Are You Taking Advantage of the Opportunities We Offer You?

"Brick and Clay Record" publishes, in almost every issue, some illustration of an expert use of brick or tile. Has it occurred to you that these articles, reprinted as circulars, would bring your name before the people that you are trying to interest in your material?

Motor Trucks and Brick Delivery

While some manufacturers of motor-driven delivery trucks are running day and night on war orders, others are developing their product and devising ways of utilizing the surplus power that is so great a recommendation for this method of transporting material.

One point that is being given a great deal of thought is the extra wagon-box or "skip" which can be loaded at the yard or car, and then placed, with its load, upon the truck the moment the latter arrives at the loading point. With horse-drawn vehicles, it is claimed the time lost in loading the wagon is only a proper resting spell for the horses, and that, were it not for this, the horses would only be able to work through a much shorter day. No allowance is made, however, for the time lost by the driver.

Where "Build with Brick" is Billed Like a Circus. This Poster, in Two Colors on White, Shows Motorists the Road to Right Building Methods

Of course, this lost time is completely gone in the case of the untiring motor truck and any device which will enable it to make one or more extra trips each day will be the means of getting just that much more out of the investment made in its purchase.

Another, and similar development, is the "trailer" which can be built to carry a much greater load of material than the conventional brick truck that is designed for horses. Where the pulling power of the horses must be considered any additional weight given the wagon is so much dead weight that the horses must pull and this must be given consideration.

All of this is taken care of in the case of motor trucks, and the power is predetermined. No allowances need be made for hot weather, and the prevailing practice of sending two loaded teams at the same time, to jobs that are apt to be "mired in" is obviated. This practice has been found to have many faults—the principal one being that one teamster always waits for the other to load and unload, and, in cases where the contractor can be induced to part with a little silver, leads to the occasional little journey to a nearby saloon.

The motor truck, with its trailer, can go at a fair speed over level roads and where the pavement is fair. If there is a bad spot near the building, the driver can unhook the trailer and go in with his truck. That being emptied, he comes back and hooks on to the trailer. No horses are left standing in the sun and no driver is left to his own devices, which, as a rule, are convivial.

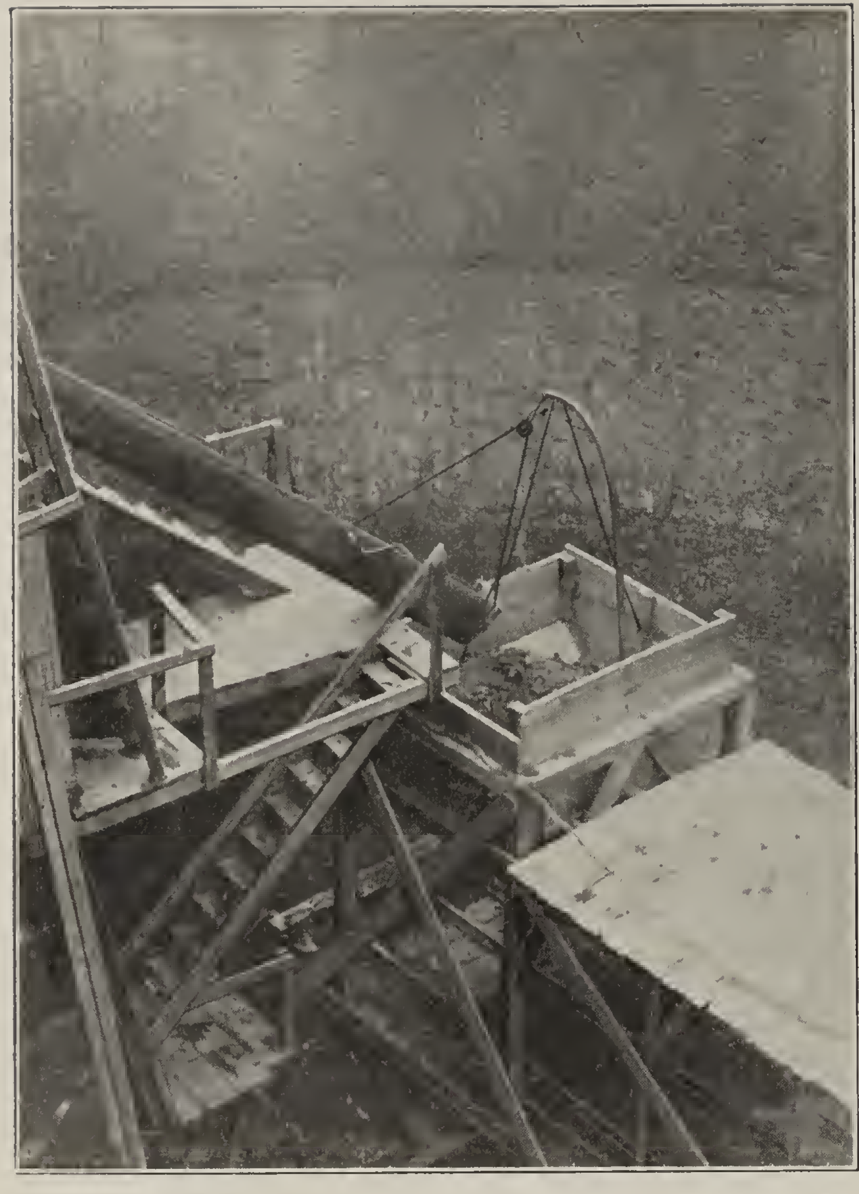
Utilizing Posters to Good Advantage

If gasoline can be successfully advertised with three sheet posters, why not brick? If "Build with Brick" signs that are measured in inches have proved good investments, why not "as big as a fence"? The J. M. Leach Manufacturing Company, of Kokomo, Indiana has decided the argument is plausible and has decorated a goodly number of the fences along the roads that lead to and from Kokomo with "three sheets" that set forth not only the fact that building with brick is the only way a wise man builds, but that, if he wishes to be ultrawise, he will build with the "Kokomo kind"—which is the sort of brick that the J. M. Leach Manufacturing Company makes.

A Shale Planer that was "Home Made"

Being a Description of a Device Built by a Hollow Tile Manufacturer Whose Plant is Located in Iowa

EDITOR'S NOTE: Shale planers not unlike the one that is made the subject of this article, are built and sold to the industry. The remarkable point in this case is that the device described was built, for the most part, with materials that were found in and around the plant and by men who were more expert in clayworking than in building machinery. Best of all, it works.



Looking Down Into the Hopper to Which the Clay Is Fed

WITH A SHALE BANK seventy-five feet high, and containing six or seven different kinds of raw material, the principal divisions of which are surface clay, shale and fire-clay, the owner of a clay plant located a short distance from Des Moines, Ia., found himself up against a serious problem in securing a uniform product at a minimum cost. How to gather his clay and get it thoroughly mixed always in the same proportions, seemed at first no easy task and it was not until the device now used at this particular plant for "winning" the clay was perfected, that the existing difficulties were overcome.

That this plant owner solved his pit problem with success cannot better be proven than by the statement that during the first year in which the new method for gathering clay was in operation, the profits of the plant showed an increase of five per cent over the same volume of business done in years when a different method was used for bringing the raw material to the machines and when the face of the bank was not quite as high as at present. The new clay gathering device paid for itself during the first year through increased profits made possible by its use.

The excavator that was built at this plant is shown in the accompanying illustrations. From them it may readily be seen that the device is truly a home-made affair. Some old steel rails, heavy timber, a quantity of second-hand lumber and some corrugated sheet iron are the chief constituents of the machine, which, after some experiment, has been made to work very well.

As may be seen, this machine consists primarily of two parts—a large tower-like structure swung on a pivot and resting on a movable track, and a loading platform with a hopper under which a car is backed and filled. The tower part of this clay gatherer is constructed principally of old steel rails and timbers. The front part of the tower facing the bank is largely taken up by the planing apparatus, this being composed of a series of cutting knives which travel upward along the face of the bank, each knife being followed by four cast steel conveyor buckets which are almost unbreakable. On the very top of the tower is sort of a shed, the roof and sides of which are covered with corrugated iron. This shed houses a 25-h. p. motor, which furnishes the power for the planer, driving the knives, while a 3-h. p. motor located near the bottom of the machine moves it in its semicircular sweep on the face of the bank.

As has been mentioned, the knives of this planer move upward and at an angle away from the machine, thus permitting the face of the bank to brace itself and prevent slides or a cave-in. This method of cutting on an angle also reduces the amount of power required to drive the knives, from fifteen to fifty per cent, depending upon the degree of the angle. The material as it is cut, is delivered into a hopper at the top of the tower, from which it is led into a sheet iron chute carrying it to another hopper located about half way down the height of the machine. Here it remains awaiting the return of the clay car from the factory.

The clay car is made of sheet steel and holds five yards of material. It is drawn by an electric truck on which there are two trolleys connected to wires carrying 440 volts.

The distance between the pit and the factory is about three-quarters of a mile, a round trip being completed in nine minutes, including the time required for loading and unloading the car. When the car returns to the excavator from the clay shed at the plant, it is backed down under the second hopper, where it automatically releases the shut-off on the mouth of the hopper. When the car is filled to its maximum capacity, the flow of clay is automatically stopped. It is then pulled out from under the hopper by the operator and starts on its way to the plant. Since the car filling arrangement is automatic, the operator of the hauling system does nothing but back the car under the hopper. There is one motor in the electric truck which pulls the clay car, the horse-power of which is twenty-two. The clay track serving the machine and over which the clay car is run, comes in toward the machine in the same direction as that in which device is advancing. Therefore a short addition to the track is all that is necessary each time the excavator is moved toward the face of the bank.

The machine is built strong and rugged, readily cutting through kidney rock, soft sand rock and where boulders are encountered, is not injured. Removable knives are used with double ends which can be reversed by knocking out a taper pin and turning the knives around. The chain which carries the knives and the buckets is held in place by hollow rollers which are kept filled with grease to eliminate friction and prevent excessive wear of the parts. Only one man is required for the operation of this machine, while another is usually employed to look after things on the ground, such as moving forward the track as the cut on the face progresses, work which the operator could not do unless he shut down the machine, thus losing valuable time. At the present time four hundred tons of shale are being cut and delivered to the hopper in ten hours.

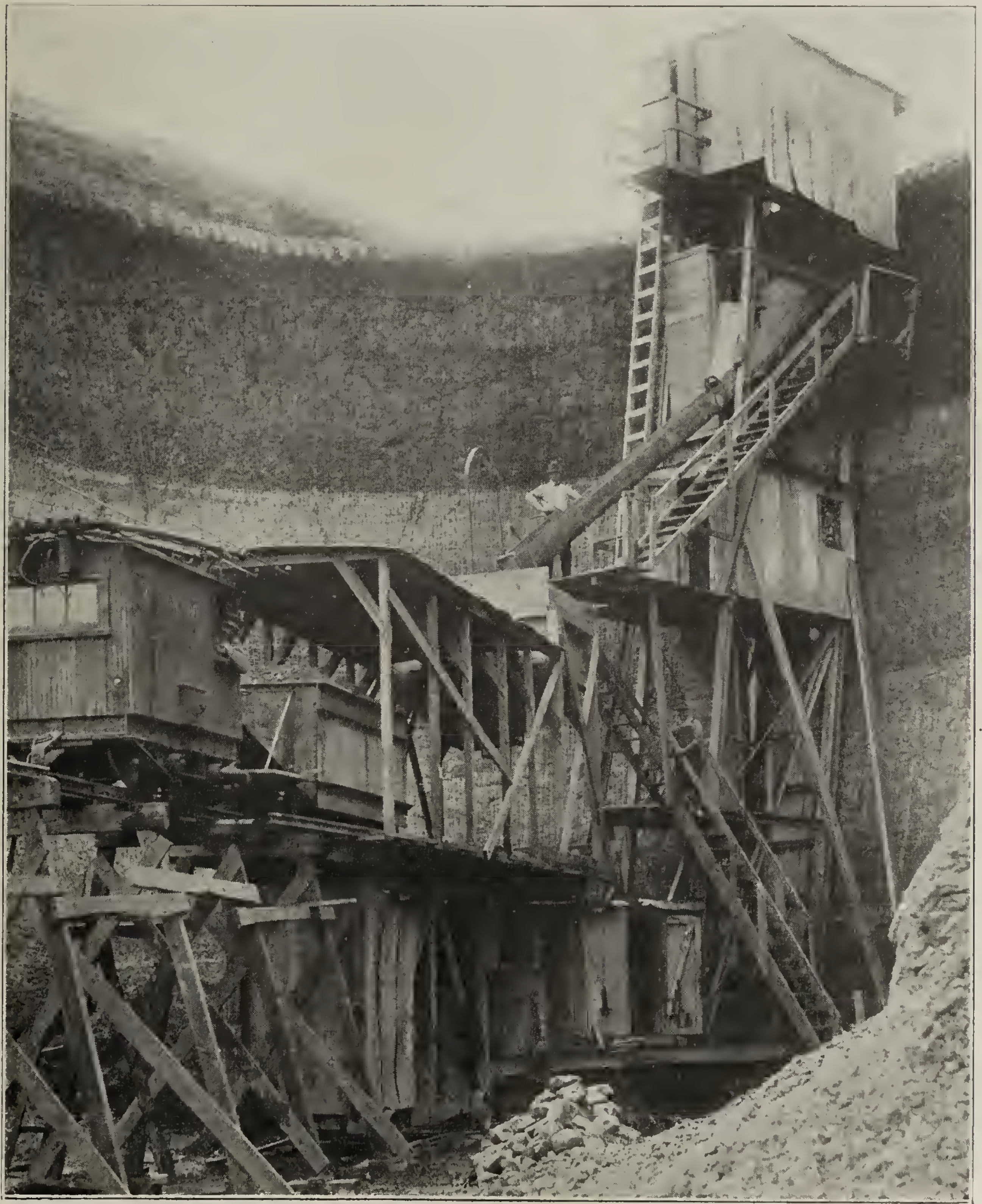
The clay, as it is delivered to the dry pan, is in comparatively small pieces and of a uniform mixture. The power saved in grinding and moulding the clay at the plant because of the comparative fineness in which it is delivered to the pan, more than pays for the power consumed by the excavator. As the clay comes from the pan, twenty per cent of it will pass through a piano wire screen, the openings in which are 1/16 in. while the tailings would not average in size larger than a walnut.

The clay requires less power in pugging and in the machine than it otherwise would, as it is never allowed to lose the three per cent of moisture that it contained as it comes from the bank. This fact makes the tempering of the clay a simple task and gives it greater plasticity and a finer grain, permitting it to be worked in the most complicated dies without any trouble whatever.

Because of the uniform mixture thus obtained, no variation in the method of drying is necessary to avoid checking or cracking. The finely ground and intimate mixture which is also obtained makes it possible to vitrify the ware at temperatures from fifty to one hundred degrees less than might otherwise be required. The thorough mixture of the raw materials in the manufacture of the ware also increases its strength about fifteen per cent more than were this not done. This, in turn, results in a minimum of breakage during shipment, in fact the company has found that its loss from this source amounts to less than thirty cents per car. Also because of the uniformity of the material from which the ware is made, a maximum rate of cooling is possible without injury to the finished product.

Then, too, another attractive feature of this device is its ability to operate under all weather conditions. On the majority of clay plants, rain usually prevents the pit gang from working and during the winter months, the plants that are able to remove clay from their pits economically are few and far between. The machine here shown will deliver practically dry clay into the hopper under any weather conditions when operated continually, having been run constantly during a rain for hours at a time and when the clay hauled from the machine was ground at the rate of about fourteen tons per hour in one dry-pan had a fineness that would go through a piano-wire screen with openings a little less than 1/16 in.

Nor does cold weather interfere with the operation of this machine. It has been found that when the mercury registered twenty degrees below zero, the face of the bank froze to a depth of only four inches over night, and this frozen material being rapidly planed off when the excavator was started in the morning, its continued operation preventing any further freezing during the day.



The "Home Made" Shale Planer Working at a Seventy-Five Foot Bank

The Farm Paper's Attitude Toward Tile Drainage

In Which is Shown a Strong Force Favoring Drainage But Not Urging The Use of Any Particular Material

EDITOR'S NOTE: This article is written from the farm paper standpoint, and to appeal to the farmer. It will not tell the manufacturer of burned clay tile anything he does not already know—or think he knows. It will put in words, however, some arguments that he can use in favor of his tile, and will give him the subject matter of a booklet or circular (if he wishes to issue one) that he can profitably distribute to the farmers in the territory he serves. For that reason, if none other, it deserves careful and thoughtful reading.

THE SUMMER JUST GONE will be remembered by farmers as one of unusual dampness. While the heavy rainfall in nearly every portion of the country has been productive of both good and evil, so far as the clayworker is concerned, its greatest benefit will be in stamping upon the minds of thousands of men who till the soil the necessity of a better system of farm drainage if the crop losses which have occurred this year through abnormal precipitation, are to be prevented in the years that follow.

No better indication of the rapidly growing interest in drainage matters brought about by the above mentioned conditions, can be had than the fact that farm papers everywhere are urging the installation of more and larger drains.

There has been a great deal of wheat lost this year because land needed tiling, says "Wallace's Farmer," of Des Moines, Ia. The farmer perhaps did not suspect it, as the last five years have been dry years in the humid section; that is, they have had less than the normal amount of rainfall. We may now naturally expect a series of years that on an average will have more than the normal amount of rainfall. One or more of these years may be dry, but on a likely average they will be wet. Someone may say: How do you know? Simply because that is the order of nature. Rainfall comes in cycles. As far back as we have any records of rainfall, not only in this country, but in other countries, this cycle law prevails.

You did not suspect in the last five years that your land needed drainage. This year is revealing to you just where it needs it. It is the part of wisdom, therefore, to put in tile drains as soon as possible; not open drains, but tile. The open drain has its place. Sometimes it is the only kind of drainage, but it naturally interferes with the cultivation of your land.

You have sloughs this year which were dry last year. Then you plowed right through them—perhaps raised your biggest crops there. This year you can not cross them at all. These sloughs need drainage. They are really the most difficult lands to drain, requiring the greatest skill. Perhaps you have bottom lands on which horses mire down, on which you could not plant corn, or which you could not cultivate, and it is now weedy and foul.

The first thing to do is to determine the fall. Don't guess at this. Get a good surveyor, and find out how much fall you have. Have him lay out the system for you. Be sure that you have an outlet. If you have to pass through the land of a neighbor, take the matter up with him, and secure the right-of-way amicably. The neighbor may want to use the same drain and the same outlet. Go at the thing in a neighborly way, and assess the cost in proportion to the benefits each will receive from the draining.

Don't make the mistake of putting in too small tile. There are very few places in the corn belt where less than a four-inch tile is required. Study the nature of your soil, to determine how far apart your drains should be laid. On alluvial soils, or made soils, if they are not gumbo, you will not need to put the drains very close together. If you have plenty of fall, your drains will draw farther. If you have little fall, you will have to put in more of them. The more gumbo there is in your land, the closer you will have to put your drains, for obvious reasons.

Now with regard to tiling sloughs: What is a slough? What we used to call in our boyhood days, when the word "slough" was not known, a "wet-weather spring." At the head of this slough there is a vein of clay through which the water does not penetrate readily. Therefore it forces itself out, and the slough itself is the measure of the erosion or washing away that has been caused by this "wet-weather spring" at the head. You will find a number of sprangles or branches to this slough. You will not drain it properly if you run the tile drain up through the middle of it near the branches. You will have to tile around either branch. Three-inch tile is probably large enough for that purpose. After you are below all of the branches, you may combine them and run a large drain through the center of your slough, if you wish. Men with large experience, however, prefer to run two drains, one on each side, and thus prevent the washing in the slough.

In putting down these drains around the branches of the slough, don't put them just where the water comes out, but far enough above that, so that the tile will rest on this vein of hard clay and prevent the water coming down. Have you not noticed in crossing a slough where it branches out, that the wettest place is before you get to the slough itself? You want to catch the water, so that it can't come out. If you put your drain in the middle of the slough, this wet place will continue. We regard it as a much more difficult job to drain out a slough than to drain out a piece of ordinarily level, wet bottom land.

There are some lands which it is exceedingly difficult to drain. For example, we know that, in Canada, south of Winnipeg, there is a great stretch of country in which the soil particles are so fine that it cannot be drained with

Removing the Sod and Top Soil for a Line Through a Corn Field

The Second Digging

tile drains. We have land of similar character in southern Iowa. People who don't live there call it hardpan. Hardpan is a good deal like milk sickness used to be in the early settlement of Illinois, "just over in the next county". It is land in which the soil grains are so fine that it is almost like rock, and through this the water permeates very slowly. Tile drains don't work well in that kind of land.

If we had that kind of land, however, we would drain it as soon as possible. We would not put the drains over two feet deep, perhaps not over a foot and a half. We would use a small tile, say three-inch, and put the tile close together. We would not expect them to be very effective for ten or fifteen years, but eventually they would break up that hardpan. For, bear in mind that in draining the object is not only to let the water out, but let in air. The air will gradually break up this tough clay. If you can get clover to grow on it, do so, because this will gradually subsoil the land and make it possible for water to get into the drains.

We warn you, however, that this will be a slow process. If you are one of those men who hold land for speculation, and don't expect to farm it permanently, don't do it; but drain out your land of alluvial formation, drain out your sloughs, make your land more salable. Then if you should make up your mind to make it your home, it will be a blessing to you and your children.

There are two objections that may be made. One is that it will make the land drier in a dry season. That is a pure fallacy. Drains will never carry off anything but surplus water, water that is doing harm, water that lies between the soil grains. The grains of soil will not part with any water they can hold. They hold to it as tight as a miser does to his dollars.

Another objection made is that they are not lasting. They are not lasting if poor tile is used; but if good tile is laid, they will last for generations. The farmer should never buy anything but good tile, that will last.

You must be careful about the outlet. You must protect it from being washed out. You must keep muskrats from getting into it, by using a gate that swings out when the water is running, and closes when it ceases to run, and in the proportion in which it ceases to run.

We have never known of any money being lost through wise drainage. We have known of losses by men who have tried to save the expense of an engineer, and tried to make water run uphill. We have known it to be lost by putting in a drain in the wrong place, as in the center of

The Third and Final Operation. Grading the Bottom of the Ditch to Insure the Tile Being Laid in a Proper and Workmanlike Manner a branching slough, instead of on the sides. Don't hesitate about going to some expense in having your land surveyed and the stakes properly set. Then see to it personally that the tile is put in according to grade, and that it is of good quality. Allow no water to enter the tile except through it. There is no trouble about the water getting in.

We are not telling you all about tile draining, but simply calling your attention to things which you know, if you happen to think about it. We can not afford to have our farms in the rolling sections of the country cut up with sloughs. We can not afford to have a slough become a deep gully that needs bridging. That was exactly the case with a lot of lands, for example, in southern Iowa. You have lost a good deal this year. Take precautions so that you won't lose any in the same way in years to come. Take this thing up as soon as harvest is over, and determine that next year you will not mire down in harvesting a thirty to forty bushel crop of wheat. Many farmers have lost enough this year to put in quite a lot of tile drains.

Make up your mind that the climate of this country is not changing except from year to year. The only thing certain about the weather is that it is uncertain. We usually have a series of dry years, when we do not need drainage at all, and then a series of wet years, when we may need it every year.

Nor does Iowa alone need drainage. The following extract from the "Michigan Farmer" of Detroit, Mich., shows a realization that more effective steps should be taken to protect crops from excessive moisture and increase the harvests of that state:

This season has emphasized the need of soil drainage on all but the most open soils where nature has already provided perfect drainage. One of the conditions of plant growth is that the soil be not surfeited with moisture, as, if the interstices between the soil grains be filled with water, air will be excluded and the submerged plant roots will as surely drown, as would an animal if deprived of air. Some means must be employed that will aid the percolation of water through clay soil or that will carry it away from submerged low lands. In either case the most practical means is the tile drain.

Open ditches are extravagant in that they occupy usually the best part of the land and require, because of their tendency to cave, a vast amount of labor to keep them clean. They furnish breeding ground for weeds, and prevent the symmetrical shaping of fields. The crude practice of using brush, stone, timber or board drains has pretty well disappeared with the introduction of tile. Where tile of good quality are used, and a fall of adequate grade secured, such a drain should give good results indefinitely.

The distance that tile drains should be apart will depend upon the character of the soil and depth of the drain. Where laterals are used, these should not enter the main at right angles, but at an angle of forty-five degrees toward the outlet. It is important that good judgment be exercised in obtaining tile of adequate size.

Minnesota offers a rich field for the manufacturer of drain tile. Its large and fertile farms produce heavy crops of wheat, corn and other grains, the price of which has been unusually high during the past year. Yet it is surprising that this state is but in its infancy as regards the drainage of its farms. In the light of this knowledge, therefore, the following article from "The Farmer" at St. Paul, is interesting:

A larger proportion of the tillable land in the Northwest has failed to produce a crop this year by reason of excess of moisture and poor drainage than has been the case for many years. However, in spite of this fact, the Northwest is blessed with a very heavy and satisfactory grain crop. But the fact remains that thousands of acres of land, usually in small patches, was plowed last fall or last spring, prepared for seeding and seeded, but has failed to return any crop or has yielded a very poor crop. This will naturally have a tendency to interest people in drainage.

We have always contended that good, permanent drainage of farm lands affords one of the safest and usually one of the most profitable investments that can be made on the farm. This is due to the fact that usually one already has a large investment in the undrained land, which, owing to the fact that the land is undrained, is bringing no returns. A comparatively small additional investment per acre will usually drain this land and render highly productive not only the money invested in drainage, but also the money originally invested in the land.

There is sometimes a question regarding the advisability of draining a large field, say 40 to 80 acres, though such a drainage system usually proves profitable. But there is absolutely no question about the advisability of draining out small irregular areas in the middle of fields that are now cultivated. When these irregular pieces are tiled so that they can be worked in with the rest of the field, the whole field can be worked with the same amount of time and labor as is now required to work the dry parts, so that all of the crop produced on the drained area is clear profit that can be credited to the drainage investment. It is quite frequently the case that these small areas in need of drainage have the best soil on the farm. Low land well tiled can usually be worked earlier in the spring and sooner after a heavy rain than the balance of the field that is not tiled. So from the standpoint of ease of working, early maturity of crops and productivity, drained land is usually better than the other land of the farm.

The first requirement for drainage is an outlet. This usually involves more than one farm, consequently it becomes a community problem. The legal phases of this are usually amply taken care of by state laws. It is simply up to the people to get up a petition to have the ditch surveyed, viewed and passed by the County Commissioners, built and paid for by the county, and the cost assessed against the property benefited, in 10 to 20 year payments.

Much time, expense and ill-feeling can often be avoided by taking the matter up at a Farmers' Club meeting or other community gathering, and considering it fully. It would be a good plan to make a thorough study of drainage so that every one in the community might quite thoroughly understand the proposition, both as to probable cost, methods of proceeding and probable advantages.

Much saving can often be made by a group of farmers in a community employing a capable engineer to lay out the system for several farms rather than for each one to act independently and get the work done on each farm as a separate job.

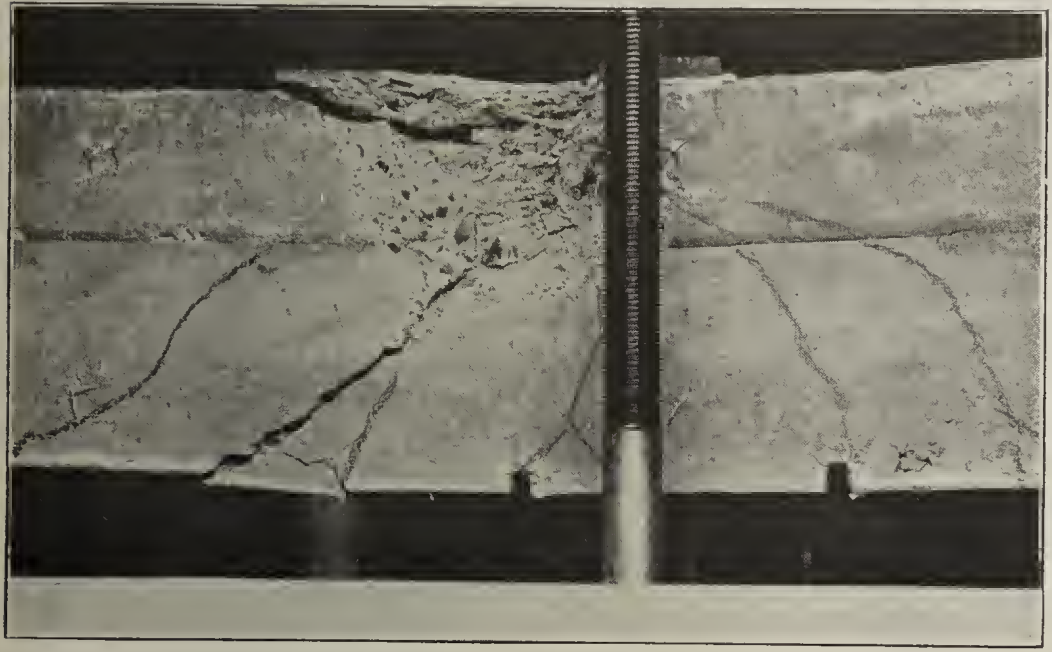
In all probability a great deal of drainage will be done in the Northwest in the next ten years. This will develop what is practically a new industry—that of tiling. Experienced men can do much better work and do it much more rapidly than men without experience. It would be well for a community contemplating considerable drainage in the next few years to take steps to get some such men in the field to do the work, both the surveying and the laying of the tile.

Making "Pay Dirt" of Breakage

Experiments at Iowa State College Demonstrate Efficiency of Burned Clay Aggregate in Concrete Work

EDITOR'S NOTE: Very little is known to the average clayworker of the work that is being done on his behalf by the state universities. Here is told the result of tests made on concrete beams, each twenty inches high by ten inches wide and ten feet long, in which refuse burnt clay materials—the breakage of Iowa clay products plants—was used as an aggregate and compared with crushed limestone used for the same purpose. The resultant figures have considerable interest for the Great Clay Family.

WHEN LIMESTONE IS USED as aggregate in reinforced concrete, the fire-resisting qualities of that concrete are no more than those of limestone, which, as is well known, is slight. Yet limestone is used as aggregate in many parts of the country, the principal reason being that there is plenty of limestone and that it is cheaper to use than trap-rock or other aggregate that is less liable to calcination.



Test Beam of Concrete Made with Burned Clay as an Aggregate

Engineers have long known that broken brick, sewer-pipe and other burned clay products made an aggregate that was ideal, from the point of fire-resistance. Very little data had been obtained, however, as to the strength of the concrete made with this sort of aggregate, as compared to concrete made with limestone.

In April, 1914, a few interesting tests of the value of the refuse burnt material from an Iowa clay products plant were made by the Structural Section of the Engineering Experiment Station, says a writer in the "Iowa Engineer."

Two reinforced concrete beams were made, in which the burnt clay was used as coarse aggregate for one and crushed limestone for the other. The cement and sand were the same in both beams. Six inch cube specimens for crushing tests were poured with the beams.

Proportions of concrete materials, 1-2-4 by volume.

The beams were 10 feet long, 20 inches high and 10 inches wide, reinforced 1 inch above the bottom with four ¾-inch square corrugated bars. Two of the bars were bent up 18 inches from each end. Two vertical stirrups were also used near each end. The beams were reinforced to develop the strength of the concrete itself.

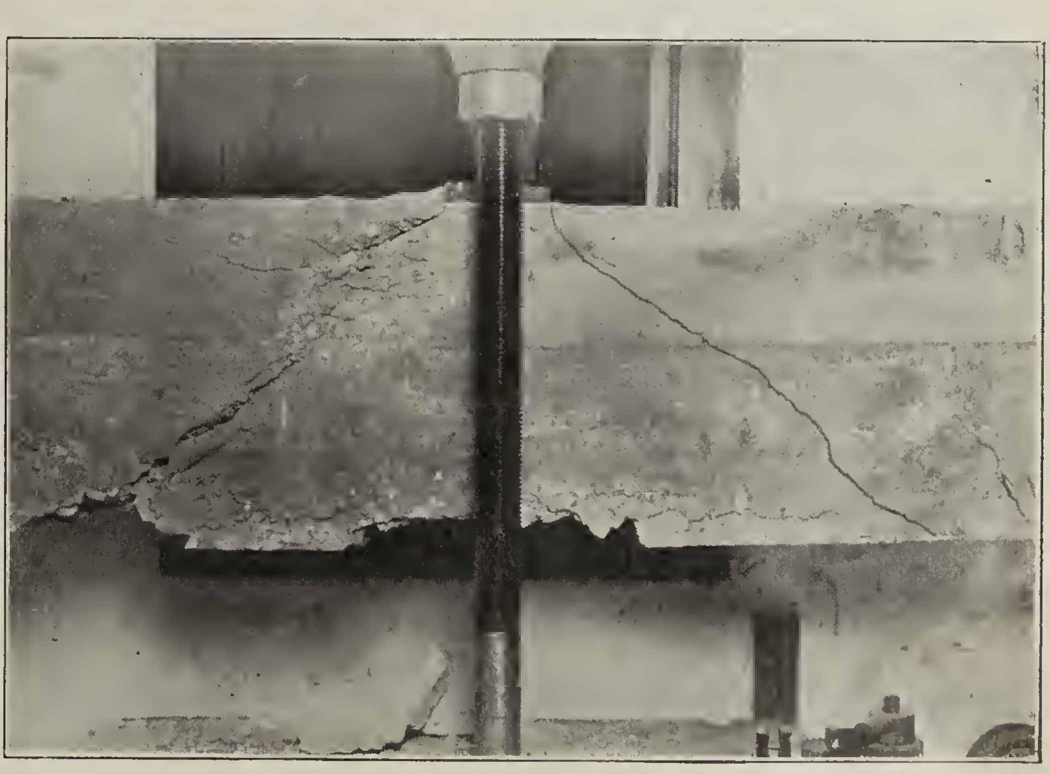
The beams were tested when 28 days old, on supports 9 feet apart, under center loading, failing under loads as given below. Both beams failed by crushing near the point of application of the load and by diagonal tension in the center half of the length.

The beam that was made with the burned clay aggregate sustained a total load of 65,000 lbs. The beam that was made with the limestone aggregate sustained a total load of 47,500 lbs. The average strength of six-inch cubes, after twenty-eight days, was: Burned clay aggregate, 1,250 lbs.; crushed limestone aggregate, 860 lbs. · After thirty-eight weeks: Burned clay aggregate, 3,860 lbs.; crushed limestone aggregate, 2,300 lbs. The burned clay aggregate weighed 71 lbs. and the crushed limestone aggregate, 93 lbs. The absorption—lbs. per cubic foot—was: Clay, 5.5 lbs.; stone, 2.83 lbs. The table given below will show, also, that the size of the unit was more even in the clay, than in the limestone.

GRANULOMETRIC ANALYSIS

Passing Sieve No.	1	2	4	8	30	50	100
Clay	63.1 %	10.57%	.33%	.10%			
Stone	83.86	33.82	9.72	3.6	1.39	1.01	.66

Although the scope of the tests was not sufficient to justify



Test Beam of Concrete Made with Limestone as an Aggregate the formation of any conclusion, still the work is of much interest, as indicating a good use for a large amount of waste material.

It is the intention of the Engineering Experiment Station to start a thorough investigation of this and some allied problems as soon as possible.

Pottery Notes

Nearly 7,000 tons of china clay, the largest single shipment ever received at the port, was recently landed at Portland, Me., from the steamer Eustace of Fowey, England. Twelve days were required to unload the vessel as all of the work had to be done by hand.

The "surprise prize" offered by officials of the Trenton (N. J.) Potteries Company for the most novel feature at the recent outing of the company was carried off by employes of the Enterprise Pottery. The "surprise" won much applause, and President Campbell and other officials of the company complimented the shopmen for the ingenuity displayed in their "stunt."

Harry Ashmen, of Trenton, N. J., a member of the firm of the Elite Pottery Company, was recently married to Miss Edith Kenney, daughter of Mr. and Mrs. Thomas Kenney, of 218 Cleveland avenue, in that city. These young people are both widely known in Trenton social circles and are receiving hundreds of congratulations from their many friends.

The Buffalo Pottery Company, of Buffalo, N. Y., has completed its experiments on a new line of dinner ware and salesmen are now offering it to the trade. In placing this ware on the market the management was certain that the body was all that could be asked, while the decorations were in keeping with the excellent reputation that the company has enjoyed in that direction for a long time.

The four kiln general ware plant built several years ago at Falls Creek, Pa., is to be operated as a hotel china ware pottery by a recently organized company of which J. B. Lessell is the active head. The plant is modern, having been built by W. J. Harvey, formerly of East Liverpool, Ohio.

The State Board of Taxes and Assessements of New Jersey has reduced the assessment made by the Assessors of the Borough of Flemington on the personal property of the Fulper Pottery Company for the year of 1914. The assessment was placed at $14,000 by the Trenton assessor, $6,000 of which was the amount of the assessment on the book accounts. The State Board held that this was incorrect, and reduced the total assessment to $8,000.

H. A. Baldridge, of Rochester, N. Y., and E. E. Myers, of Pittsburgh, Pa., were added to the board of directors of the Consolidated Manufacturers Pottery Company, at its annual meeting recently held at Grafton, W. Va. Other members of the board elected were A. O. C. Ahrendts, George R. Adrendts and S. B. Davis. The company has not been operating its plant steadily during the summer, but with the opening of the active buying season, received a number of orders that will insure activity throughout the winter.

K. P. Snyder, of the Louisville (Ky.) Pottery Company, reports an excellent business this summer. The demand for crocks and jars is very active just now due to the large crops of fruits and vegetables, which are being "put up" by individuals and various concerns. Jugs are also fairly active. Flower pot shipments will commence at the first frost when florist and gardeners begin transplanting. The company's plant was closed during November and December of last year, and since that time has never been able to catch up with orders. Officers of the company are contemplating improvements which will increase the capacity of the plant. The kiln capacity is not quite large enough at present, as it takes about two weeks to burn most of the concern's products.

$300,000,000
CUSTOMS DEFICIT
INDUSTRIAL BONDS FOR SALE
REAL ESTATE LOANS WAITING
OVERSEAS TRADE DEVELOPMENT
EUROPE
$1,000,000,000 LOAN
FARM MORTGAGES TO BE FINANCED
Richard F. Fseman CHI.

Is He "Seeing America First"?

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Difficulty in Grinding Wet Shale

699. *Minnesota—We are having difficulty in getting wet shale through our dry pan. Can you suggest the cheapest and best remedy?*

Temporary relief may be obtained by mixing the setter's waste (that is, the unburned ware which comes to the kilns, but which is not sufficiently perfect to set) with the wet shale that is fed to the dry-pans; this, however, is only temporary, since all of the available dried clay will be used up in a very short time. We are assuming that you are already using all of the broken burned ware that your clay will stand.

On the other hand, there are clay driers advertised in "Brick and Clay Record" that would take care of your problem and do it in a very satisfactory manner. This, however, is an installation that attains its maximum efficiency when the clay is wet all through the year, which we assume is not your case.

Your remedy seems to lie in installing a clay storage system with conveyors that will handle the clay after it has been weather-dried. That will insure a better clay mixture and—at least in the majority of cases—a better and more uniform product.

Discoloration in Painted Hollow Tile Walls

703. *Pennsylvania—In several cases, where plaster has been applied to the inner surface of our hollow clay tile or clay tile furring, and then painted, it has been noticed that the paint blisters, bubbles or discolors. We have a case at present, in which our tile was used for the walls of a church. The plaster was applied directly to the tile walls, and an oil paint immediately put on the plaster. Large blisters or bubbles—some of them as large as a man's hand—are now forming on the walls, and under these blisters or bubbles, a creamy, granular substance appears that has a decidedly salty taste. There is a great deal of talk about the occurrence, and some interests are trying to blame the tile. We feel that the tile is in no way to blame. We have had numerous buildings erected where a lime mortar is used and in these we have had no trouble with any deposit or efflorescence. Our tile is frequently left on the hack heaps for nine months or more and in no case have we found any discoloration upon it. We do find, however, that when the tile is laid up with cement mortar, an efflorescence appears on the tile around the joints. We have had our tile tested, and the absorption is under two per cent. In the case alluded to earlier in this letter, cement mortar was used, and we feel that the paint was applied to the plaster before it (the plaster) was dry, and perhaps before the cement joint had been given an opportunity to thoroughly dry out. We feel that, in this case, the plaster has absorbed or combined with the salts in the cement mortar joints and has taken the substance that causes the blisters in the paint, from the cement. We would like to hear from you as to whether you know anything about similar occurrences and whether or not there is a way of preventing them. We have suggested the use of a waterproofing compound in the mortar, but several masons and plasterers, with whom we have consulted, tell us that there is no satisfactory waterproofing compound made that can be used in this way. They say that the only satisfactory treatment is to use a waterproofing paint, applied directly to the entire inner surface of the tile wall, and as we all know, this is too expensive a process to be considered as a commercial proposition, at least in a large number of building enterprises.*

We are of the opinion that the trouble which has arisen in the case mentioned is due entirely to the paint's having been applied to the plaster before the latter had been thoroughly dried, and that the blisters in the paint were caused by the evaporating moisture in the plaster (and perhaps, the joint) which was seeking an outlet. Plaster is, and has been applied directly to the inner surface of tile walls, all over the country, and so far has given very satisfactory results, the case cited by our correspondent being one of very few that have come to our notice. This opinion is strengthened by the fact that the correspondent's tile has a very low absorption—much lower than the average. This, and the fact that he has never had any efflorescence appear on the tile that was hacked in his yard—even after an exposure of more than nine months—is pretty good evidence that the treatment, and not the tile, is at fault. It looks very much as though the blistering was due to some constructional fault and this may be the use of cement with tile of so low an absorption. The fact that the tile takes comparatively none of the moisture from the cement leaves only the inner and outer surfaces of the joint as points where the excess moisture can escape. It may be that the outer surface of the joint dried out much more quickly than the inner surface, particularly as this inner surface was again wetted when the plaster was applied to it. Capillary attraction may have been set up that brought out all of the salt that was in the cement, or in the water with which the cement was mixed (see "How to Prevent Efflorescence in Finished Brickwork" in the Sept. 7 issue of "Brick and Clay Record") and that the plaster would have been scummed, even if not painted. This thing has happened in buildings where impervious paving brick were used and where plaster was applied without furring. In that case it was clearly the fault of applying the plaster before the cement joint had been given an opportunity of drying out, and was caused by the church committee's insisting upon the contractor's turning over a finished building within a certain specified time. In the case cited by our correspondent, the moisture in the plaster was held back by the comparatively impervious paint film that was put on by the decorator, and the conditions made so much the worse. With regard to the appearance of efflorescence around the cement joints, it would appear that this is a problem that can be solved by the use of barium. We again refer our readers to the article by Arthur E. Williams in the Sept. 7 issue of this magazine.

Burning Pulverized Coal Under Air Pressure

705. *Indiana—I noticed, in the last issue of your magazine, the account of a visit made by the American Ceramic Society to a cement plant in Pennsylvania. In it, mention was made of several devices which the ceramists saw, and which seemed to impress the author as being worth the attention of clay products manufacturers. One of these was the burning of pulverized coal under air pressure. Can you, or any of your readers tell whether any experimenting has been done with burning pulverized coal under pressure—that is, in connection with brickmaking?*

A great deal of thought has been given, and some experimenting has been done, in regard to the burning of powdered coal in brick kilns. There is the advantage of complete combustion, with no ash, and a much higher amount of heat is secured by using coal in this way, than is obtained from the same coal burned in an open grate, a furnace, or, for that matter, transformed into gas in a gas-producer. The intense heat is the drawback. At the cement plant mentioned, the flame was 21 ft. long and at no point did it touch the fire-brick lining of the rotary kiln. Using the same flame in a down-draft kiln, the fire-brick in the crown would be eaten away in short order, particularly as this flame would deposit a certain amount of slag on the fire-brick—a material that would aid greatly in the destruction of the fire-brick. To reduce the flame and control its direction so that it would not be brought in direct contact with the ware, or with any part of the interior of the kiln, would so reduce the pressure that there is a great doubt as to the complete combustion of the coal powder. So far as we know, it has never been done successfully in connection with brickmaking, but on this point we would be glad to be corrected.

Wants to Change Drying System

706. *Virginia—We are comparatively new in the brickmaking business and write you for a little advice. The brick on this yard were formerly trucked by hand barrows and hacked in sheds, and put on steel pallets and the steel pallets placed on pipe racks heated by exhaust steam, eleven tiers high, for drying. We have fitted the sheds with an iron track, are using pallets that hold 400 to a load, which are transferred by lift cars; we are very well satisfied with this part of the work, but we have retained the steam racks, hoping to make out with them. We find that the labor of putting the pallets from the cars into the racks to dry and, when dry, from the racks to the cars, and then into the kiln, is so much more labor expense than comes with the lift car, that we want to change the system of drying to a less costly system, so far as labor is concerned. We make about 28,000 brick a day; our air-shed capacity is about 175,000; steam dryers about 60,000; 80 h.p. boiler and 60 h.p. engine. Clay can be dried in 24 hours by using exhaust steam in day and live steam at night. Air sheds take about 8 to 15 days, depending upon the weather. Our air sheds are 30-ft. wide and dry slowly. Our steam dryer is in three sections or compartments, each having two lines of piping, five pipes wide on which the pallets rest and eleven tiers high, making 110 one-inch pipes, 115-ft. long in each compartment. Our exhaust steam heats two of these sections at a time, but not enough to give heat for all three sections at one time. We only put brick in the steam sections when the air sheds are full, but we keep it all full pretty much of the time. We understand that there are a good many steam dryers that use the lift car system. If they are all right we could use the present houses, and piping, and possibly the cast-iron headers in making the change. To use any of the advertised dryers would take more capital than we would care to put out just now and we are writing this to ask what you think it would be well for us to do.*

It is practical to place your present rack coils under or between the lift cars, which would give you an increased capacity—and still use your lifting trucks, which you find satisfactory. The matter of placing these pipes so that you would have a proper heat distribution is something that will require the services of an expert, and we strongly advise your having a man who understands heat distribution—preferably one who has made a specialty of dryers, come to your plant and supervise the work. No matter what his fee may be, it will cost you less to do this, than to work out some home-made system that may or may not have to be junked, after it has caused you other losses, in shutdowns, spoiled ware, and gray hairs.

Drying Raw Shale with Waste Heat

700. *North Carolina—Can you or any of your readers suggest a practical and efficient method for drying shale by waste heat from the kilns or with exhaust steam from the engines, or both?*

While we are of the opinion that better results would be obtained by storing the clay in a covered shed with open sides, as described in the answer given to another correspondent whose question appears on the preceding page, "Brick and Clay Record" would appreciate any information that its readers can give it in connection with this matter. Is there any good method of drying raw clay by waste heat? Not but what it is reasonable to believe—but where has it been successfully done?

Waterproofing a Brick Oil Tank

702. *Connecticut—Can you give us any information as to the proper methods to be used in waterproofing a tank made of brick and cement for the purpose of holding fuel oil? This tank will be practically all underground and is now cemented inside and out but this treatment does not stop the tank's leaking.*

It will first be necessary for you to drain off all of the oil that is now in your tank and to burn the tank out so that none of the oil will remain to prevent the new cement which you will have to apply, from adhering to the old walls. Then mix the cement mortar in proportions of one to two, using very coarse and very sharp sand, none of which should analyze under a forty screen. To this add some good waterproofing compound. There is a material which has been very successfully used for this purpose and if any of our readers desire to know the name and where it is manufactured, the information will be sent them upon receipt of request made to this office.

Wants Product Known as "Lithosite"

701. *Illinois—The writer desires to get the address of whoever produces lithosite. This is said to be a substance related to fuller's earth, to be mined in Texas and to be used in the making of electrical insulators. Before troubling you in this matter, I have exhausted a number of sources of information. I shall, therefore, appreciate your suggestions.*

We have never heard of any mineral or material that has been placed upon the market under the name of "lithosite." Fuller's earth is a type of clay and no clay having its composition and properties is required in the manufacture of electrical porcelain. It is possible that this correspondent has confused the name "lithosite" with "steatite" (Talc or Soap Stone), the white variety of which has been recently experimented with as a flux in porcelain bodies.

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

High Freight Rate Puts Damper on Business

The institution of the Interstate Commerce Commission has accomplished a great deal for the shippers of this country, and not the least of its achievements is that the old time superstition that it was useless to ask for any favors in the way of rate adjustments, has disappeared. A few years ago, the following letter would have been impossible. It comes from the Earl Park (Ind.) Clay Products company and bears an August 16 date:

> As it is the purpose of your office to help the clayworkers to bring their products to a better market, we are taking the liberty of writing you for much needed information. We have, in the past, made drain-tile only, but the trade has dropped off so rapidly that we thought it well to begin the manufacture of hollow building tile. We have, however, had great difficulty in finding a market for the latter, and this is due, we believe, to the excessive freight rate that we have to pay. We have worked a full year with the railroad company, trying to secure a commodity tariff, but so far, seem to have accomplished nothing. The new tariff has been promised, from time to time—once they said that it was in the printer's hands—that was more than three months ago. Is there any way that we could count on receiving (as a rebate) the freight paid on shipments that we might make now under the old rate, in anticipation of the new and lower rate? The freight is what is holding us back in looking for trade—were it not for that, we could come into Chicago and get at least a part of the immense tonnage that is used in that city every year.

Assuming that you have taken the time and trouble to secure a personal interview with your Division Freight Agent, and that you have not entrusted the entire matter to the mails, we would advise your writing a letter to the General Freight Agent, setting forth the facts, and stating that you are being seriously injured by the failure of his company to either give you a commodity tariff, or to say that it will not do so, and so open the way to your filing a complaint with the Interstate Commerce Commission. Make it so read that the General Freight Agent will understand that you do not want to make the complaint but that you are compelled to by the fact that you cannot market your product until you secure a proper rate. When you receive his reply, send it to this office, and we will see what can be done. There is no use of looking for a Chicago connection so long as you have to pay a class rate on your ware. It would be illegal for the carrier to give, or for you to receive, a rebate such as you mention.

Removing Efflorescence From Finished Brickwork

The question of efflorescence continues to absorb the attention of a great part of the brickmaking and brickselling world. It has, fortunately, shifted from the question of preventing dryer scum or the formation of insoluable salts on the face of the brick themselves to a much more dangerous proposition—that of the appearance of efflorescence in the finished brickwork. One letter, which shows how this interest finds expression, comes to us from the Fort Wayne (Ind.) Builders' Supply Company and is dated September 9th. It reads:

> We have you postal calling attention to the September 7th issue of "Brick and Clay Record," and are much interested in reading the article by Arthur E. Williams on preventing efflorescence in finished brickwork.
>
> Up to this writing, however, the September 7th issue has not been received. If we have been overlooked in this, we trust you will send us another copy.
>
> Perhaps this article will tell us how to overcome the efflorescence on brickwork that has been standing three or four months.
>
> If it does not, have you any information on file which will advise us in this respect? If you have, we will appreciate it as a special favor if you will give us the benefit thereof.

We are very glad to know that so many of our readers see the necessity of accepting the responsibility in connection with efflorescence. It has been the custom in the past to saddle nearly all of the defects of brickwork upon the bricklayer. On his broad shoulders has rested nearly all of the shortcomings of the brickmaker and incidentally, this idea seems to have met with the approval of the dealer or man who made the sale.

The brickmaker, having added barytes to his clay in such proportion as was recommended by some ceramist or proved by experiments, has turned out a product which he claims is "efflorescence proof," the dealer has taken this claim as fact and sold the brick to the customer with the artful statement that "the brick" would not effloresce. It is noted that the salesman does not say that the "brickwork" will not effloresce *although that is the impression which he desires to give the customer.*

"Brick and Clay Record" has been criticized by several for bringing this subject to the front and has been told by several of its readers that the subject was one that should not be "stirred up." At the same time, this magazine knows of cases where face-brick salesmen have taken customers to buildings in which competitors' brick have been used and, by pointing to the whitewash on those buildings, have killed the sale so far as the competitor was concerned. The salesman, in other words, has said "that kind of brick does effloresce," even though he knew at the time that the efflorescence was not due to the brick but to some other cause.

In view of this state of affairs, "Brick and Clay Record" believes that it is doing a good work in keeping this matter prominently before its readers until such time as the men who are making and selling face-brick devise some plan whereby they can follow their product through to the building and see to it that proper precautions are taken to insure its being laid with material and against material that will not cause it to show wall white.

In this case, our reader goes beyond that—he is anxious to cure a situation which is of several months' standing. If any of our readers have had a similar experience and have been able to overcome it, they will do "Brick and Clay Record" and its host of subscribers a great service by sending the details to this office.

Meerschaum Pipes From American Clay

Another, and probably important industry that will be established in the United States, is that of manufacturing meerschaum pipes and cigar holders. The following letter, which comes from J. C. Melcher, R. F. D. No. 4, Lagrange, Texas, gives some idea of the field. It is dated September 7th and reads:

> I am sending you, under separate cover, the first meerschaum pipe made in the United States from American meerschaum. I think I have enough of the raw material to furnish a large industry but until we have expert pipe makers in the United States, the mere owning of the clay will do me very little good. This deposit is a large one and for this reason must not be confused with a previous discovery (which was in New Mexico) where, although the clay occurred, it was not in commercial quantities.
>
> I made this pipe last Saturday and burned it yesterday in a very crude way. You will see that I overburned it on one side. I placed it on an open charcoal fire for twenty-seven minutes and it got an uneven heat as well as some smoke.
>
> These pipes should have about twenty-five minutes of an even and clean heat—then they turn milk white. In Europe I understand they dip some of the pipes in boiling beeswax to improve the gloss and the strength but the "best smokers" are left natural like mine. They must stick to the tongue if they are good.

We are of the opinion that Mr. Melcher is wrong in his statement that "there are no pipe makers in the United States," but believe he is right in his statement that meerschaum (the raw material) has not been found in commercial quantities up to the time of his having made his present discovery.

The Man Who Reads and Enjoys

Every man who writes for (or edits) a magazine likes to believe that what he has spent time and thought upon, finds at least one interested reader. One of these is found in our good friend, John Berwald, of the Davenport (Iowa) Brick and Tile Company. He writes, under date of August 20:

> The editor who wrote the article on page 252 of your August 17 issue (that the brick industry needs handbooks) deserves great credit. He is correct in saying that if such books were in the hands of architects and contractors, it would be a great help in increasing brick sales; and we as brick manufacturers would be able to make sales arguments that we are unable to make at the present time. The issue of August 17 is certainly A. No. 1; pages 268 to 271 are extra good. The item on page 263 has also brought a thought to me, for, as we say, one idea will lead to another. Although this company is not in the face-brick line, we see a great deal of face-brick being handled, and we wonder why it would not be a good idea to ship face-brick in strawboard cartons, containing, say, lots of 25, 50 or 100. Between these cartons could be a layer of light strawboard instead of hay, as now. These cartons could be handled from the car to the truck and from the truck to the job, and be hoisted or carried to the scaffold. It would bring the brick to the bricklayer in much better shape than it now comes, and there would be no chipping or spalling. The articles on pages 260 and 261 also pleased me greatly.

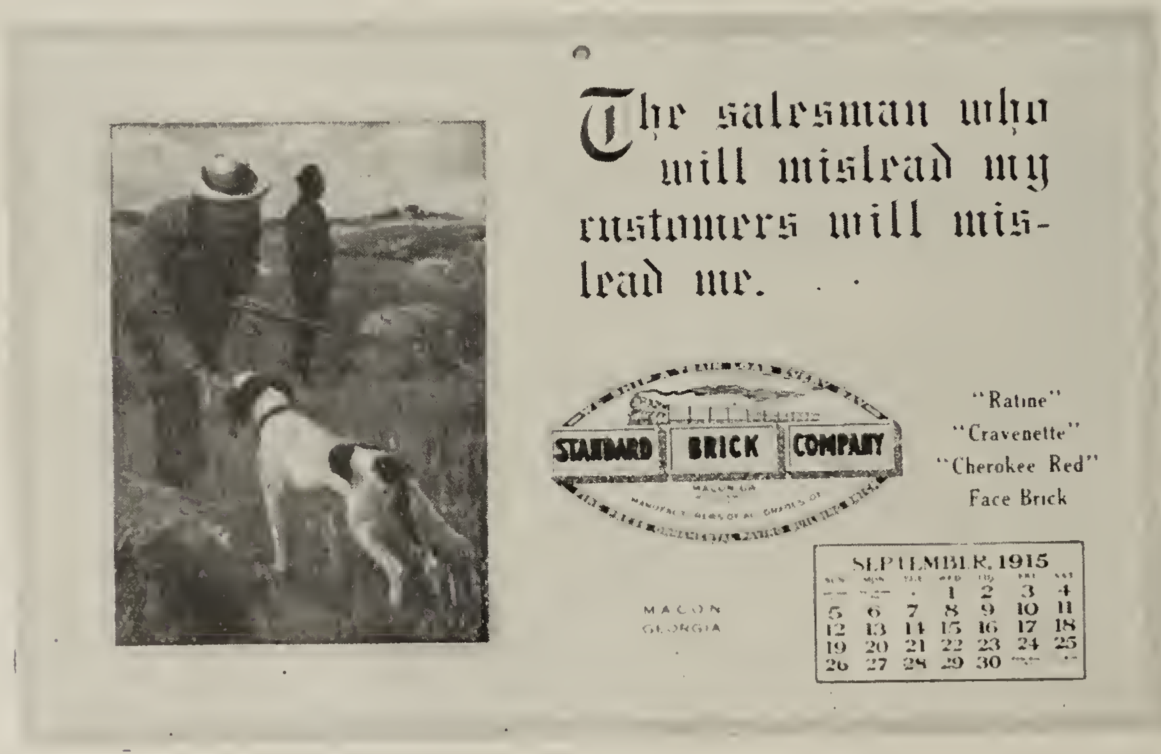
One would believe from the above letter that Mr. Berwald had given the August 17 issue a thorough reading; it seems that this is his regular habit, for another letter comes to us—this time under date of Sept. 11, and it reads:

> Your issue of Sept. 7 was first class and we must give you a special compliment on the subject chosen for your editorial, on pages 330 and 331. The brick convention should be "more business and less pleasure"—in fact, the person who takes in all of the convention meetings and who listens carefully to all of the papers that are read and to the discussions that will follow, will get the real good of the convention. The entertainment is secondary and not important. The little cut of a brick that you are using on your advertising pages is a fine idea and the father of that little stunt is to be congratulated.

It is altogether against this journal's policy to print compliments. There is a certain immodesty in telling the whole wide world (that is, such part of it as is interested in clay) that John Smith or Jim Jones thinks you are getting out a dandy paper and that it is worth ten times as much as the subscription price. But the writer of the two letters that are printed here, goes beyond the idle compliment—he shows that he is giving the greatest possible praise to the work, by carefully reading the paper from cover to cover. And lest a real point be lost—does it come to you that perhaps John Berwald, of Davenport, Iowa, gets more for his $2.00 a year than you are getting? He enjoys every line of the paper—how much of it do you enjoy? How much of it do you read?

Attractive Brick Advertising

The Standard Brick Company, of Macon, Ga., has struck a novel way of attracting attention to its various kinds of face-brick, and seems to have hit two birds with one stone. The card—an illustration of which is published here—is 7x4½ inches, and is printed in four colors. A calendar for the present month, and a little hole, punched in the top margin, tells him that the card should be hung up, right where he can see it. The sentiment regarding dishonest salesmanship is so apt and pertinent, that it sticks in one's thought—a thought that inevitably must come back to the idea that the Standard Brick Company, of Macon, Ga., makes a good product—one that does not need to be misrepresented, in order that it may be sold at a price.



The salesman who will mislead my customers will mislead me.

STANDARD BRICK COMPANY
MACON, GA.

"Ratine"
"Cravenette"
"Cherokee Red"
Face Brick

MACON
GEORGIA

SEPTEMBER, 1915

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Manila Rope Data

There are a number of clay plants in which manila rope is used for power transmission. It follows, therefore, that a considerable number of superintendents are interested in the strength of the rope and size of sheaves required for this type of drive, also the speed at which it may be run for certain kinds of work. This information, together with other interesting data, is given in the following tables which are self-explanatory:

DATA TABLE

Diameter of Rope	Square of Dia.	Approx. Wt. per ft.	Breaking Strength, lbs.	Length of Splice, ft.		Smallest Dia. of Sheave, inches		
				3 Strand	4 Strand	Transmission	Hoisting	Tackle
¾ in.	.5625	.20 lb.	3,950 lbs.	6	8	28	10	6
⅞ in.	.7656	.26 lb.	5,400 lbs.	6	8	32	11	7
1 in.	1.0000	.34 lb.	7,000 lbs.	7	10	36	12	8
1⅛ in.	1.2656	.43 lb.	8,900 lbs.	7	10	40	13	9
1¼ in.	1.5625	.53 lb.	10,900 lbs.	7	10	46	14	10
1⅜ in.	1.8906	.65 lb.	13,200 lbs.	8	12	50	15	11
1½ in.	2.25	.77 lb.	15,700 lbs.	8	12	54	16	12
1¾ in.	3.0625	1.04 lbs.	21,400 lbs.	8	12	64	18	14
2 in.	4.0000	1.36 lbs.	28,000 lbs.	9	14	72	20	16

FACTOR OF SAFETY

For Power Transmission	Use 1/36 of Breaking Strength of Rope.
For Direct Hoisting	Use 1/18 of Breaking Strength of Rope.
For Tackle Blocks	Use 1/7 of Breaking Strength of Rope.

SPEED

Slow—Derrick, Crane and Quarry Work, 50 to 100 ft. per minute.
Medium—Wharf and Cargo Hoisting, 150 to 300 ft. per minute.
Rapid—400 to 800 ft. per minute.
Power Transmission—3,000 to 5,000 ft. per minute.

FORMULA

Weight per Lineal Foot of Manila Rope $= 0.34 \times (\text{Diameter, Inches})^2 = \text{Wt. in Lbs.}$
Breaking Strength in Lbs. of Manila Rope $= 7{,}000 \times (\text{Diameter, Inches})^2$
Breaking Strength in Lbs. of Cotton Rope $= 4{,}000 \times (\text{Diameter, Inches})^2$

TACKLE

$P = (W + 1/10\,WS) \div R$. In which P = Power Required; W = Load; S = No. of Sheaves R = No. of Ropes at Running Block including Standing Part if attached to it. Friction for each Sheave = from 4% to 30%.

Pugging with Hot Water

Many brick manufacturers are aware that clay passes more readily through the machines when it is warm than when cool, but few have ever thought of applying this observation to improving the quality of their goods or to facilitating their production. One reason is the cost of heating the water and clay, and another is a disinclination to try anything new.

One enterprising manager has recently taken a branch from the steam pipe used to provide steam for lubricating the die or mouthpiece of the brick machine, and connected this branch to a couple of holes tapped in the bottom of the pug-mill about one-third of the length from the exit end of the mill, the two holes being about five inches apart. The steam pipe was one inch in diameter from the boiler to the mouthpiece, but at the latter it was reduced to a one-half inch pipe. The two branches leading from the pipe to the openings in the pug-mill were, therefore made of three-eighths inch pipe. The steam discharges directly into the pug-mill, the pressure being sufficient to keep the clay out of the pipe.

The brick come out of the machine at a temperature which is not so high that they cannot be handled by the men, and yet is sufficiently high for the men not to be able to hold them for more than a moment. The reduction in the power required to drive the pug-mill is quite noticeable in the clay referred to above, and it was also found that less oil is required for lubricating the brick as they passed through the mouthpiece when oil was used instead of steam in the latter. Though no accurate tests have been made, the workmen declare that the quality of the clay is improved and that it becomes more plastic.—"Brick and Pottery Trades Journal."

An Aid to Cleaner Walls

One of the drawbacks to the white painted wall is the tendency of that white surface to become blackened with finger marks. This shows around door knobs, switches and, frequently, indicating gauges, for the men will put their hands on the wall, if there is half a chance.

To overcome this, and at the same time add to the clean appearance of the room, paint a dark green circle around every switch, or plug, or gauge or knob and, for that matter, at the point where, turning a corner, the men have a way of "following the wall."

In point of fact, follow the finger marks, and wherever they are, paint a green circle.

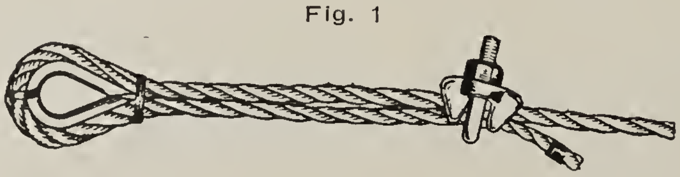
How to Apply Wire Rope Clips

The length of rope to be allowed for the loop when attaching clips depends largely upon the number of clips to be used, which in turn depends upon the loads to be handled. This length will vary from thirty to thirty-five times the diameter of the rope; that is, for a one inch rope, from thirty to thirty-five inches should be allowed for the short end after passing around the thimble.

Bind the top of the thimble with wire to the rope at the desired point. Then bend the rope around the thimble and secure temporarily by wiring the rope together. (See Fig. 1.)

Next apply the clip farthest from the thimble at about four inches from the short end of the rope and screw up tight. Be sure that the base or saddle of the clip rests upon the long or main rope and the "U"-bolt upon the short end. (See Fig. 2.) This is imperative. Also see that the short end of rope rests squarely upon the main rope.

Fig. 1



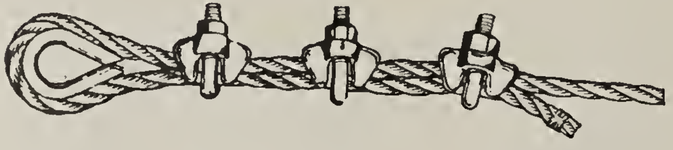


Fig. 2

The clip nearest to the thimble should next go on, placing it about four inches from the thimble. Do not screw up tight when first put on. If one or more additional clips are to be used, place them at equal distances apart between the clips already attached. Before tightening the clips put on after the first one, it is advisable to place some stress upon the rope to take up slack and equalize tension on both sides of rope. After this has been done, tighten up clips last applied.

See that the nuts on each clip are tightened uniformly, by giving alternately a few turns to one side and then the other.

After a rope has been in use a short while, all clips should be again tightened, as stress tends to straighten out a rope, thereby reducing its diameter.—"Mining and Engineering World."

A Practical Oil Extractor

As one travels about, and visits various power and electrical plants, he notices many novel ways of doing things, says C. V. Hull, in the "Practical Engineer." The various devices for saving oil are interesting. If the management will allow it, any of the oil extractors or waste cleaners are good investments for fair sized plants. Engineers in small city plants usually find it rather difficult to get such equipment and have the choice of allowing oil and waste used in wiping the oil from the machines to become a dead loss or of arranging his own cleaning and oil saving device.

This is especially true in the smaller electric lighting plants. When I visited one of these a few days ago, I noticed at once that the engines and generators were wiped clean and dry. Everything about the plant was clean and "ship-shape." The conditions were a little unusual and attracted my attention. Among other things I noticed was an ordinary sausage filling machine. It was just such a machine as you may see in any hardware store in the country towns and was fastened securely to a small bench. I asked the engineer the use of the machine. He demonstrated it at once. Picking up a lot of oily waste from a pail, he filled the chamber of the machine. Then he put on the pressure and squeezed out nearly a quart of good oil, which he dumped into the filtering oiling system. Of course, the waste was not absolutely dry and clean, as it would be if cleaned in a commercial machine, but it was in fine condition for cleaning generators, engines and metal surfaces. Moreover, considerable oil was saved and was easily put in condition for use in the oiling system.

To Blacken Brass

Brass having surfaces that require a dead black can be treated as follows with good results: Heat the brass over a fire that is clear, such as charcoal, and do not allow the sparks to come in contact with it, or else red spots will appear. When the metal becomes slightly red, dip it in nitric acid, then heat again, but not to a red heat. Give the surface a good rubbing with a bristle brush, and clean with a cloth slightly greasy. A fairly permanent dead black will be the result.

Blasting Wire Precautions

The increasing use of electric blasting and of larger charges emphasizes the importance of watching the condition of all leading and connecting wires and of the points of contact, so that it will be known, beyond question, that the connections are all well made.

Avoid kinking the wires, as this leads to cracks and breaks that are not easily detected through the insulation. Don't drag the wires over the ground, for this scrapes off the insulation. Test the blasting machine with the rheostat at regular intervals to see that it is working up to capacity. Test all circuits with the galvanometer before attempting to blast.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

Showing the Bucket Dumping at the Plant

PROGRESS in any line of endeavor is usually preceded by a necessity that creates new methods and means of doing things better. The necessity of meeting rising costs and keener competition has finally induced certain clayworkers to see the wisdom of using a drag-line cableway excavator to strip shale beds so that the surface clay will not be a hindrance to steam shovel work.

This method has also been adopted in a number of cases for digging and conveying the raw material direct to the plant. It has been used extensively in connection with sand and gravel plants, levee work, stripping work, etc., but the Cedar Rapids Brick Company, Cedar Rapids, Iowa, was one of the first to install this type of equipment for excavating commercial clay and conveying it to the mill.

The mill of this company is located on the side of a hill and the clay bed extends up and through the hill. When the pit was first opened it was a simple matter, by the use of teams and scrapers, to bring in the clay; but as the clay bank receded it became more and more expensive to carry on this operation, and as the desired daily capacity would not warrant investment in a steam shovel and cars or the expense of maintaining such a system, Mr. Cartwright, superintendent of the plant, after thoroughly going over the proposition, bought and installed a drag-line cableway excavator.

After trying out the machinery and satisfying himself it was the ideal way to handle his clay, Mr. Cartwright set about to obtain the highest efficiency of the machine. By replacing the original bucket with a Sauerman Type "A" Dragline Cableway Excavator Bucket and arranging for a rapid shifting device to change the line of operation he obtained the results he was looking for and demonstrated its practicability.

As installed, the drag-line cableway excavator is as follows (see Sketch 1): A short mast or tower at the top of the slope, a 400 ft. inclined track cable leading from the tower to the clay sheds at the mill and supporting a one-half cubic yard Sauerman Type "A" bucket. A tension cable reeved through a set of blocks at the top of the mast connected to the track cable and controlled by the rear drum of a Thomas double drum electric hoist, a pull cable running from the front drum of the hoist through a guide block on the mast and attached to the pull chain of the bucket.

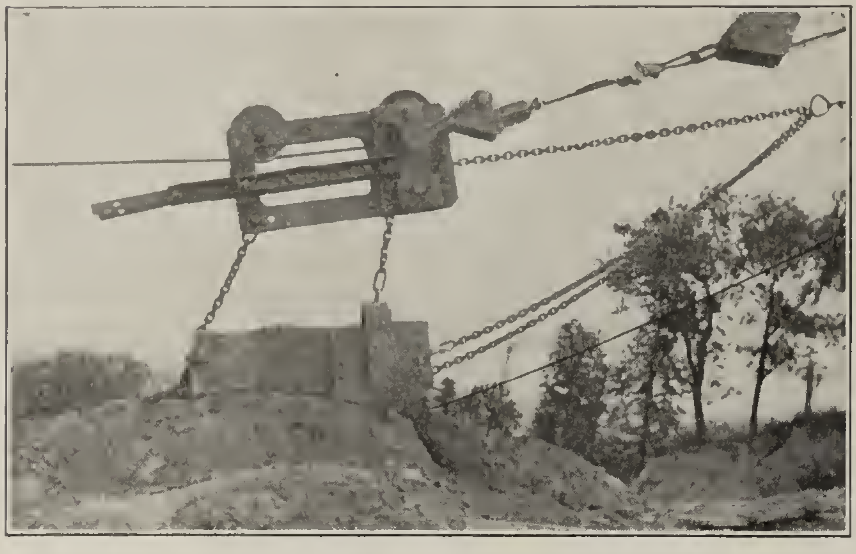
To operate, the engineer releases the tension cable, thus allowing the track cable to drop and bringing the bucket into contact with the material to be excavated. The front drum of the hoist is then put into operation controlling the pull cable and draws the bucket into the clay, filling it. With the bucket loaded the tension line is taken in on the rear drum, thus raising the bucket with the track cable. At the same time the brake on the front drum is released and the bucket travels down the cable by gravity, to the dumping point, where it is automatically discharged into a receiving hopper. The photographic reproductions show the manner in which this is accomplished.

After working this part of the pit for some time a much better clay was found in another part of the pit (see Sketch 2). In this case the clay was dug at the low end of the cableway and dumped at the high end into a loading hopper. Under the hopper and leading down the slope to the mill an industrial car track with an automatic switch at the center forms a railway for two side-dump industrial cars. When one car is at the top of the slope the other is at the bottom. Both cars are connected by a cable line running through a crab or drum at the top of the slope. When the car under the hopper is filled the crab is released and the full car runs down the slope, pulling the empty car up and passing it at the automatic switch.

The Cedar Rapids Brick Company finds its system a very efficient and economical means of transporting the clay and much credit is due Mr. Cartwright for the way in which he handled his problem.

Loaded Bucket Returing to Hopper

The Sauerman Type "A" Drag Line Cableway Excavator is also adaptable for stripping clay beds and conveying the spoil back into the old pit. This is particularly advantageous for those plants that dig deep, leaving, under ordinary circumstances, a valueless pit. If the top soil or "stripping" is thick, then it is a simple proposition to dig and carry the loaded bucket over the operating face of the pit and deposit the spoil (behind the shovel that is digging shale) into that portion of the pit that has been worked out.



Showing Bucket, Carrier and Dumping Arrangement

The spoil problem is often serious, and too often the material is "piled back" with the result that in one or two years it must be moved again to make room for the advancing shovel.

The Sauerman Type "A" Dragline Cableway Excavator Bucket solves the problem in a practical, cheap way and makes valuable land from the worked out pit property.

Sauerman Brothers, 316 S. Dearborn Street, Chicago, are manufacturers of this equipment. Information and descriptive matter will be sent free on request.

A School for Brick Masons

The cost of a bricklaying course at the Coyne National Trade Schools of Chicago is $85 cash or $95 on the payment plan. The payment plan is $30 down and the balance at $5 per week for the day course or $20 down and balance at $3 per week for the evening course. A full set of working tools and a complete drawing outfit are furnished each student free of cost. These are and remain his personal property. There is no extra charge for materials. The time required to complete the bricklaying course is from three to four months in the day time and nine to twelve months in the evening and a common school education is all that is required to make a success of the course. The school is open during the entire year. Students may enter at any time and all instruction is individual.

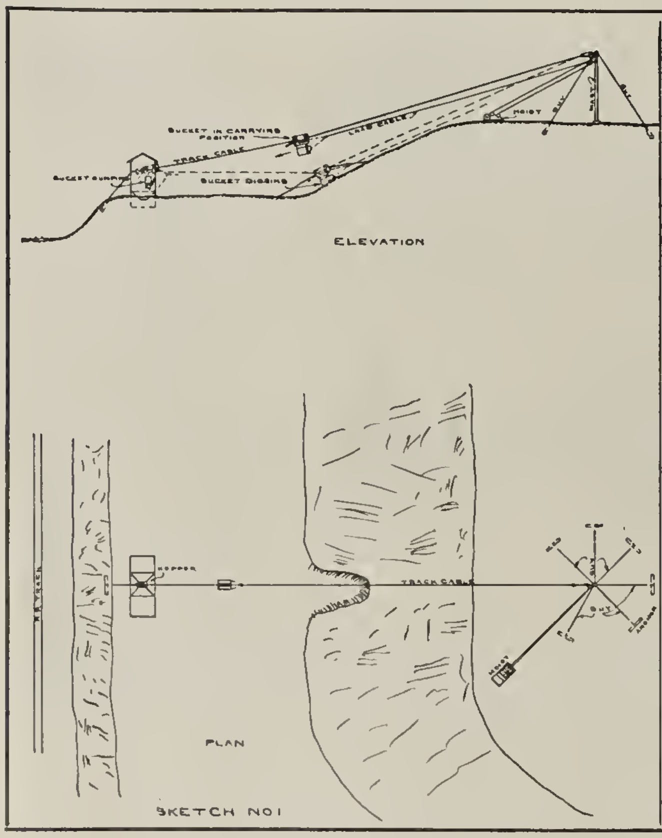
Students are placed in clean, respectable homes when they arrive. Board and room costs $4.50 to $5.00 per week. Students may, if they desire, deposit money with the school and draw it out as required. A student may attend both day and evening classes without any extra charge.

Just Starting to Dig with the Sauerman Bucket, at the Cedar Rapids Brick Company's Plant

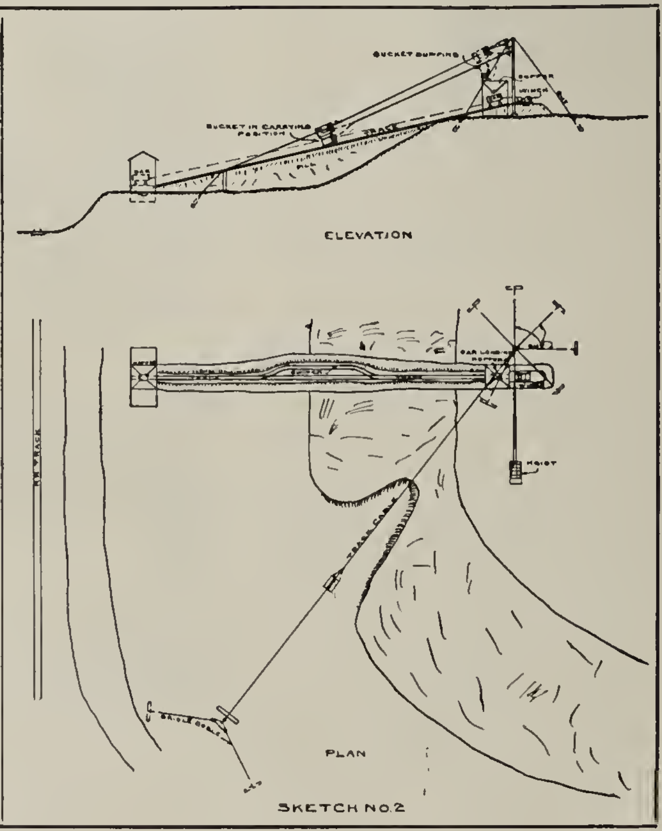
In bricklaying the student is first taught the correct way to handle the trowel in spreading mortar, cutting of brick, etc. He is then advanced to eight-inch straight walls, being taught how to carry up the wall level and plumb. He is taught to lay eight-inch, twelve-inch and twenty-inch straight walls with the different bonds and as he progresses, he is instructed in laying returns, quoins, intersections, footings, damp courses, etc.

The clay industry needs more good bricklayers, in both the large and smaller towns, for a beautiful piece of good bricklaying is an everlasting advertisement for brick. Do you know of any young man who wants to better his position?

B. W. Cooke, director of the Coyne National Trade Schools, 31 E. Illinois Street, Chicago, will be glad to send detailed information regarding the various courses to anyone interested.



Original Installation



Present Installation

Protect Your Samples

The shipment of sample brick and tile to prospective customers, architects and contractors has assumed considerable proportions.

When the inquiry is received, and often when bids are submitted, sample brick are sent, and this applies not only to face-brick but also to paving-brick and all kinds of tile. The danger of breaking or chipping, and thereby producing a poor impression, if sent uncovered, has made it necessary to wrap up the samples.

The Hinde & Dauch Paper Company, of Sandusky, Ohio, have prepared containers for one or more pieces of all sizes, and many clayworkers are using thousands of these boxes each season.

Showing a Few of the Many Sizes of Hinde & Dauch Corrugated Boxes, Which Are Being Used by Clay-Products Manufacturers

The impression made on the prospective customer who receives a sample brick carefully and snugly packed in a Hinde & Dauch box, is bound to be good, and well worth the very small cost. Send sizes or sample of your ware to Sandusky to be fitted. Durability is guaranteed.

Hand-Operated Starting Rheostats and Panels

The General Electric Company has just issued a bulletin (No. 48303) devoted to its hand-operated starting rheostats and panels for direct current motors. These devices range in capacity from ⅛ to 500 h. p., and are designed for use on 115, 230 and 550 volt direct current circuits.

Small Plant Switchboards

Bulletin No. 47050, recently issued by the General Electric Company Schenectady, N. Y., is devoted to that company's line of small plant switchboards made up of standard units in various combinations. The line provides for a great variety of conditions in small plants where panels of simple and inexpensive design are required. They are designed for 125 and 250 volt, direct current, two-wire service, for general power and lighting purposes. These units are described and illustrated in detail, various combinations are illustrated, dimensions are given, and panels designated by catalog numbers. The publication contains wiring diagrams and a list of accessories. Copy sent on request.

Iron Cement for Steam Pipes

To make a permanent cement to be used for stopping leaks in steam pipes, where calking or plugging is impossible, mix black oxide of manganese and raw linseed oil, using enough oil with the manganese to bring it to a thick paste. Apply this to the pipe joint or leak. It is best to remove pressure from the pipe and keep it sufficiently warm to absorb the oil from the manganese. In about a day the cement will be as hard as the pipe.—"Popular Mechanics."

"Safety First"

The Hess Steel Company, of Bridgeton, N. J., are manufacturing an automatic safety car wrench that is strong and usable, and still conforms to all the demands of "Safety first."

There are few clayworkers, who receive their coal, clay or sand in hopper bottom or side dump cars, who are not familiar with the ever present danger to the workman who attempts to open up the car by using the old style or the ratchet wrench.

Hessteel Ratchet Wrench

The Hess Steel Ratchet and Automatic safety car wrench combines utility, and speed with safety. It well merits consideration and adoption by those plants desiring both safety and usableness.

An Osgood Folder

For the man who wants to visualize, to see a photographic record of what a shovel can do, The Osgood Company, Marion, Ohio, has prepared Picture Folder No. 12.

This folder shows twenty-eight views of the various types of Osgood excavators, working under difficult conditions, and indicates pictorially just what the Osgood shovel will do.

Hand methods of digging and loading clay and shale will soon be obsolete, due to the unwarranted cost. Power excavators, even in the smaller plants, have proven their ability to reduce these costs.

In some instances the steam shovel is active only fifty to sixty per cent of the time, yet produces a sufficient quantity of low cost raw clay to run the plant and keep the storage system well stocked.

Osgood Steam Shovel

The Osgood shovel is a splendid producer and at a minimum of expense. Definite, interesting literature regarding it is yours for the asking.

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

SCUM Do You Have It? Can You Cure It?
You could if you knew just where to look for it. Send sample of your clay, your temper water and your coal to me to be analyzed. I will tell you where the trouble is, and how to cure it.
H. M. DEAVITT, 209 So. La Salle Street, Chicago, Ill.

The DEWEY 5-Ton Locomotive
It never balks on heavy loads or grades
Why not let the Dewey do *your* work?
DEWEY BROS., Inc., Goldsboro, N. C.

DRYER CARS
ALL STYLES—ALL SIZES
H. W. GERLOCK, Huntingdon, Penna.

Excessive Freight Rates
The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.
Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.
These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.
IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

BRICKMAKERS' HEADQUARTERS FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A.

INDISPUTABLE
The records made on the charts of the instruments furnished with Heraeus Le Chatelier Pyrometers are indisputable evidence of the care or the carelessness of your men. Heraeus Pyrometers—cheaper in the end.
CHARLES ENGELHARD
30 Church Street, New York

The Semi-Monthly Trade Review

FOR SOME MONTHS PAST, the thoughts and utterances of many of the country's leading business men have voiced a feeling that the autumn of 1915 would witness a break in the depression that has hung like a pall over the nation's business, and that a new era of prosperity would be ushered in. It has been pointed out that present slow-moving industry could little longer resist the quickening call of improved financial and crop conditions, and that the advent of October would see a revival of trade unparalleled in many years.

In direct confirmation of this belief comes the news that building permits taken out in August of this year in seventy-nine leading cities in the United States show an increase of twenty per cent over the same period in 1914. When it is remembered that August of last year covered the first month of the European conflict, the full significance of this improved showing is apparent. This is by far the most favorable comparison with 1914 that has been made by any month this year, and cities, which for a long time have been showing losses, are now reporting gains in the number and value of new operations projected.

In the value of permits issued, New York City shows a gain of 48.2 per cent over August of last year when the total was $9,993,642, as compared with $14,859,218 in 1915. During the week including the last three days in August and the first four in September, permits were issued in Chicago reaching a value of $3,495,700.

Contractors and builders of Philadelphia report a continued activity in building which will probably result in the loss of the first six months of the year being regained.

Building operations in Buffalo stand out against conditions in all other lines of industry, permits for August aggregating $1,150,000 as against $950,000 in August, 1914. While loans are still somewhat restricted, a marked improvement has been noticeable, and it is expected that a further loosening up will take place.

For the first time in several months, building permits in St. Louis during August exceeded in value those of the corresponding period last year, the record for August being $932,446, as compared with $797,165 the same month in 1914.

In Fort Wayne, Ind., building operations in August of this year exceeded those of the corresponding period in both 1913 and 1914, while in Portland, Ore., a gain of about seventy-seven per cent over 1914 is reported.

Up to September 15 common-brick on the New York market continued to hold the $6 price, which was established late in August. A year ago Hudson river brick were bringing only $5 to $5.75 for the best grades. In the light therefore

"SAY I SAW IT IN" BRICK AND CLAY RECORD

of existing prices, the outlook is very encouraging, reflecting the improvement in building.

Just what this increased activity in construction work will mean to clay products manufacturers cannot better be shown than by calling attention to the recent decision of Hudson River brickmakers to operate their plants to at least the middle of October, and many will, no doubt, continue to manufacture brick until the weather stops them. At Haverstraw, where the strike of brick yard employes has been ended, all of the plants have resumed operations, working to capacity, and will probably continue to do so until late in the fall.

Developments in general business during the past fortnight have still continued to be constructive. The railroads have waited, as usual, until the materials they require for new rolling stock has reached a top-notch price, and are beginning to place orders.

Summing up the entire situation, it looks very much as though the predictions of certain business men will come true and that within a month, when the enormous crops have all been harvested, with foreign exchange difficulties adjusted and with manufacturing and trading taking on its customary autumnal revival, prosperity will have arrived—this time for a long visit.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

CALIFORNIA

The San Francisco (Cal.) Board of Supervisors has passed a resolution providing for the paving with vitrified brick of Worth street between Twenty-first street and a point one hundred and eighty feet north of Twenty-second street.

Manager John Gerlach of the Richmond (Cal.) Pressed Brick Company, which was recently organized to take over and operate the Richmond plant of the Los Angeles Pressed Brick Company, announces that plans for the enlargement of the plant have been completed. A spur track is now being put in to facilitate the unloading of clays shipped from mountain clay beds.

The clayworking industry was well represented in the wholesale trade extension trip of the San Francisco (Cal.) Chamber of Commerce to the city of Eureka, California's leading port north of San Francisco. The larger houses represented on the excursion included: Gladding, McBean & Co., brick and terra-cotta manufacturers, the Henry Cowell Lime & Cement Company and the California Pottery Company.

CONNECTICUT

The Cleveland Brick Company's plant at Unionville, Conn., was closed for a week early in the month to permit the making of some necessary repairs.

In appreciation for the good work of the firemen at a recent blaze at its plant, the Stiles and Reynolds Brick Company of New Britain, Conn., has made a generous contribution to the New Britain Firemen's Relief Fund.

A peculiar accident happened on the night of September 9,

Babbitt Nuggets of "Nugget" Babbitt

FITS YOUR LADLES

Do you carry a stock?—ready for a new shaft, a worn crusher bearing, a hot box—on engine, shaft or machine.

Nugget Babbitt—it's 15c the pound

The Cleveland Alloys Co.
Cleveland :: Ohio

ORDER YOUR **CUTTING WIRES** FROM WEBB

STRENGTH UNIFORMITY DURABILITY
REG. U.S. PAT. OFF.

They cut every kind and class of wet clay ware. Face, common and paving brick. Sewer pipe, tile conduit and fireproofing.

They screen clay, shales and grog. Webb Wires are small and tough, cut clean and leave no ragged edges. They don't break.

THE WEBB WIRE WORKS, New Brunswick, N. J.

Tycos PYROMETERS

Practical — Dependable — Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices: Steubenville, Ohio

Mills: Newark, Ohio

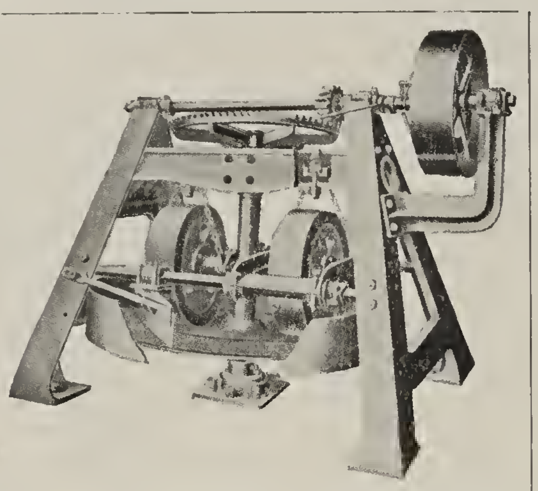
BUCKEYE MEANS BEST — BEST MEANS BUCKEYE

All Sections from 12 lb. to 40 lb. per yard

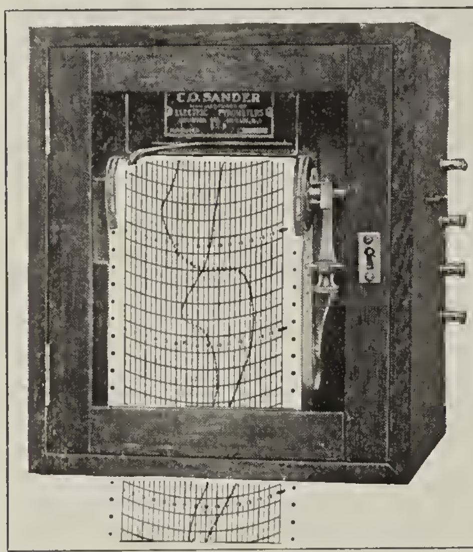
Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

A Thief—
Your tools—the office safe.
Vandalism
In the long hours of the quiet night
THINGS will HAPPEN
A Hardinge Watchman's Clock
A Ticking Conscience
Protects—Prevents—It Saves
The System is Only $36.00
Our Booklet Tells
Hardinge Bros., Inc., 1760 Berteau Ave., Chicago
Approved and labeled by National Board of Fire Underwriters.



THE EAGLE DRY PAN
Write for Prices
EAGLE IRON WORKS DES MOINES, IOWA



Guessing——
——is poor——
——business
You don't guess at the time of day. You look at your watch and KNOW. Why guess at temperatures? It is infinitely harder to do it correctly, almost impossible. The poor results on one guess would pay for a Sander. Ask.
The Sander Instrument Co.
136 19th Ave., Irvington, N. J.

Can You Afford a Shovel Shut Down?
A broken chain may tie up the entire plant for hours—for days—
Use Woodhouse Specials "they will not break".
We'll tell you why.
Woodhouse Chain Works
Trenton, N. J.

at the yard of the Wilson Brick Company at Windsor, Conn., which cost the life of one employe and resulted in a loss to the company of about $3,000. An Italian laborer was unloading oil from a wagon into a tank on the company's premises when in some unexplained manner the tank, in which there were 3,500 gallons of oil, exploded. The tank in which the oil was stored, was destroyed and will have to be rebuilt.

DISTRICT OF COLUMBIA

Henry West, of the West Brothers Brick Company, Washington, D. C., has recently returned from his vacation. The main office of the company located in the National Savings and Trust Company building is being temporarily shifted because of the fact that the building is being remodeled in sections.

About 99,000 paving brick have recently been received from Middlesboro, England, for use in street paving work in Washington, D. C. This is the same material that for the past four or five years has been arriving in Washington by the steamship early in the summer. The first cargo was brought over in July, 1910. This brick will be used in street car track paving work in various parts of the city.

A deed has been placed on record in Washington, D. C., transferring the ownership of the brick plant and grounds of the National Clay Products Company, located near Langdon (D. C.), to Richard N. Jackson, Everett E. Jackson and Samuel A. Valen, all of Baltimore, Md. The sale of the property was made under the provisions of a decree of court. The plant and ground, which included about twenty-five acres, were valued at about $77,000. It is understood that the new owners may put the plant into operation again.

IDAHO

After installing a considerable amount of new machinery, including a large repressing machine, the Heyburn Brick Company, Burley, Idaho, reports that it is turning out a better brick this year than ever before. The company is also preparing to make drain tile and hollow brick.

The Bear Lake Brick and Construction Company, which is being promoted by C. C. Wilderman and F. F. Eby, is the name of a new concern to engage in the manufacture of brick in Paris, Idaho. The parties above mentioned have been trying for some time to find a suitable place in southern Idaho to manufacture a good quality of brick, but were unsuccessful in their efforts to locate the right kind of clay until they stumbled across an old brick yard owned by Thomas Smedley, who in years gone by turned out a very good brick. The new company intends to install modern machinery.

INDIANA

The city of Laporte, Ind., has purchased a "rattler" for the purpose of making tests on the paving brick being supplied on city work.

According to present plans, work on excavating for the new Goshen and Elkhart (Ind.) brick highway will be completed this fall. The brick will then be hauled during the late fall and early winter so as to have everything in readiness for laying the pavement as soon as the frost is out of the ground in the spring.

An eight-story hotel is to be built at Evansville, Ind., one of the principal movers in the enterprise being Fred Van Orman. The new structure will have between 300 and 350 rooms, a ball room and a convention hall, and will be two stories in height, approximately 50x80 feet, the structure having a ground space of 138x144 feet. The walls will be built with a sustaining power admitting of an addition of four stories should there be a warrant for such an increase in the capacity of the hotel. The cost of the building will be nearly half a million dollars.

IOWA

The Acme Roofing Tile Company, of Des Moines, Iowa, is filling a government order for 100 squares of Spanish tile, to be shipped to Hilo, Hawaii.

L. H. Lindbloom, former general foreman for the Boone (Iowa) Brick Company has been made foreman of the Shakelford Brick Company, of Des Moines.

The Gethman Brick Company, of Reinbeck, Iowa, is now making an "oatmeal" face-brick. A speckled effect on a very light brick is obtained by mixing a Missouri clay with that gathered from the company's pit.

E. G. Nelson, superintendent of the What Cheer (Iowa) Clay Product Company, has undergone an operation for gall stones and it is expected that he will not be able to resume his place at the plant until some time in October.

The Flint Brick and Coal Company, of Des Moines, Iowa, recently received an order for a million paving-brick to be shipped to Forest City, Iowa. An order of about the same size is now being filled, the brick being shipped to Adel. The Forest City specifications call for brick 2½ inches thick, while the Adel brick are to be 3 inches thick. Both pavements will be laid "vertical fibre."

Fred Carlson, a burner with the Hawkeye Clayworks Company, Fort Dodge, Ia., claims to be the second white man in Iowa to burn a kiln of clay ware, preceded only by Hugh Parker. It is now thirty years since Mr. Carlson burned his first kiln, having seen continuous service in the clayworking industry during that time, with the exception of one year. The twenty-nine years of his actual experience were all spent in Iowa.

For the first time in years the plant of the Buckeye Clay Products Company, which has succeeded the Reliance Brick and Tile Company at Belle Plaine, Iowa, is enjoying a season of prosperity. Under the new management as much ware is now being turned out by thirty-four men as was produced by forty-five heretofore. A higher scale of wages is credited with bringing about this result, attracting a better class of workmen. The capacity of the plant is now 37,500 three-inch drain tile, 25,000 four-inch and 15,000 six-inch. No brick is made. This plant, however, is prevented from reaching its maximum capacity through the lack of dryer space. In order to overcome this difficulty, ten tracks are to be added to the dryer this coming winter.

KENTUCKY

Dalton Brothers Brick Company, of Hopkinsville, Ky., is supplying the brick for the new Dorris warehouse. The concern is erecting the building as well as furnishing the brick.

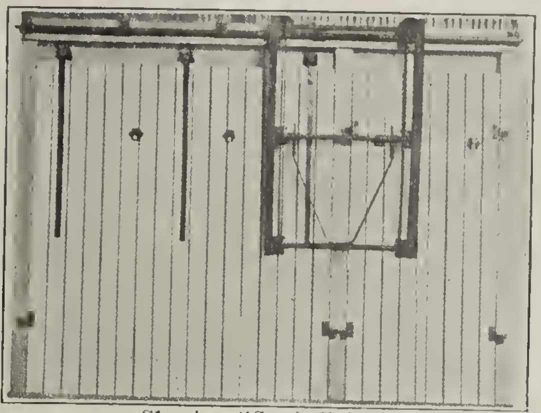
J. A. McDermott, of the Barbourville Brick and Tile Works, was recently at Mt. Vernon, Ky., where he secured some attractive business.

Charles G. Wright, for twenty years foreman of the Louisville (Ky.) Fire Brick Company, died recently of heart trouble following a short illness.

Allen R. Carter, vice-president and general manager of the Union Cement & Lime Co., face-brick dealers, has developed into a superior golf player during the past few weeks, and is spending a good deal of time on the local links.

The Kentucky Vitrified Brick Company, a plant of the P. Bannon Pipe Company, Louisville, which started last season to manufacture a salt glazed face-brick, announces that it is now making a glazed brick which has a rough

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.

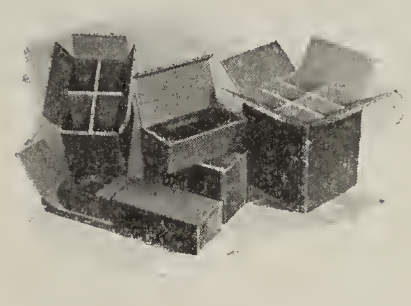
PYROMETERS

One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

The Brown Instrument Co.
Philadelphia, Pa.
New York **Pittsburgh** **Chicago**

Have you investigated the

Hinde & Dauch Corrugated Boxes?



Concerns using them have found these boxes to be the most convenient and economical method of packing sample brick. They are low in cost, but do their work well—protecting the corners and edges of the brick from chipping.

This is a matter of importance to you. Let us send you samples and prices.

The Hinde & Dauch Paper Co., Sandusky, O.

PERFORATED METAL SCREENS

As required for BRICK MAKERS USES.

PERFORATED SHEET METALS
OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

New York Office
Room 1028 Cortlandt Building

Manufactured by
HENDRICK MFG. CO.
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Pyrometer Advice

Use an accurate Pyrometer or burn by the old method. Insist on the accurate pyrometer's adaptation to your needs. Result—Decreased manufacturing cost. Material improvement in product. Write for a copy of "Pyrometer Facts."

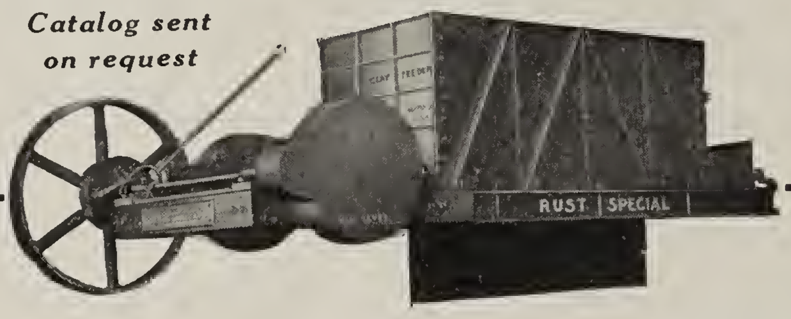
The Stupakoff Laboratories
Pittsburgh, Pa. 8

Buy the Best—the Rust Special

Do not be satisfied with anything but the best in clay feeders. The Rust Special helps you to produce better ware at less cost, and pays for itself the first year by the saving in labor.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Catalog sent on request



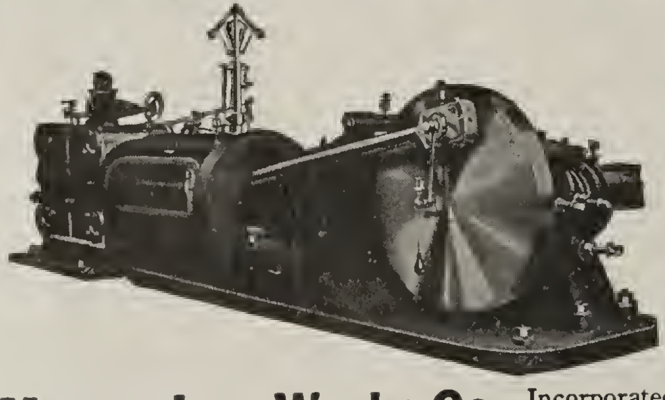
Sand-Lime Brick Plants and Machinery

Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

Let us Serve You.

Jackson & Church Company
Saginaw, Michigan

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

surface. This brick is furnished in browns and a bluish green.

The Southern Brick and Tile Company, Louisville, Ky., was recently awarded the contract to furnish the face-brick for the new Y. W. C. A. building in that city, the order calling for about 150,000 brick.

George H. Fiedler, general manager of the Coral Ridge Clay Products Company, Louisville, reports that the company's new lines of rough-texture face-brick are being well received in Louisville and vicinity. The company is now turning out about 60,000 common and face-brick daily, and is making deliveries on the new Belknap School building. Contracts have also been received for the common-brick to be used in the Tyler Hotel building, and the new Speed buildings in that city.

Most Louisville clay plants are now working to full capacity, and in some cases are having difficulty in supplying the demand. During the spring and early summer, business was rather quiet, but building operations opened up with a vim toward the latter part of the summer. A number of good contracts have been placed recently and several more will be let at most any time. From present indications local brick plants will be busy from now until the first of the year. Face-brick dealers are also getting a good share of the business, and are satisfied with general conditions.

Use of tile and terra cotta in building operations throughout Kentucky is getting to be more and more general. One of the recent developments is at Maysville, Ky., a thriving city on the Ohio river. Here the new Model Laundry building will be suitably faced with decorative tile and the new residence for E. A. Robinson also will be faced with that material. The sale was made by E. G. Bennett, representing the Kramig Tile Company, of Cincinnati. The local paper says: "These jobs promise to be the most beautiful ever completed in Maysville and will no doubt reflect much credit upon the contractor."

The R. B. Tyler Company, Louisville, reports an excellent run of business during the months of July and August, when sales went well ahead of the corresponding months of last year. The company is furnishing brick and other materials on a number of new buildings at this time. Approximately 150,000 face-brick are being furnished on the new Wm. R. Belknap school. This building will be one of the handsomest of its kind in the city. The last shipments of an order for 260,000 face-brick were delivered at the new Louisville Boys' High School building, which was opened for inspection on Labor Day, September 6. A shipment of 60,000 Kittanning brick is being made to Danville, Ky., to be used in the new Welsh and Wiseman building. A number of other good orders have been received from various points in the state, and local residence work is developing nicely.

The Louisville (Ky.) Brick Company reports that, after a rather quiet summer, business has picked up with a rush and the company is now busier than it has been for some time. Deliveries of about 30,000 brick are being made daily on small jobs, and contracts have been received on several large jobs. A half million common and face-brick will be delivered in Jeffersonville, Ind., by this company for the new St. Augustine Church. About 35,000 of these brick will be face-brick and the balance commons. A contract has been received to deliver brick for two hundred houses to be erected in Dulaney place, each of which will require about 30,000 face and common-brick. Shipments out in the state are also good, deliveries being

(*Continued on Page* 454)

One Kiln of Melted, burned-up ware

The loss on just one will more than pay for a Price Pyrometer installations—and after it is in you are forever insured against melted or underburned ware.

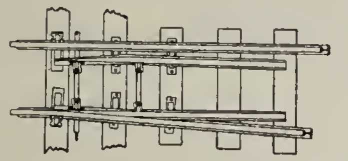
The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

NOW IS THE TIME

to look over your railway supplies and be sure everything is in good shape. We have an immense stock of raw material and can ship promptly switches, crossings, frogs, switch stands, rail braces, tie plates, portable track, etc. Send us your next order.

Catalog C gives complete details.

Cincinnati Frog & Switch Co., CINCINNATI, OHIO



Send for This Booklet

Contains lots of good information for the man who wants to reduce his power and light cost, as well as the gas engine operator who is interested in getting the most efficient results from his equipment.

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Advantages of gas power.
Facts and Figures.
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The Bruce-Macbeth Engine Co
2134 Center St. N. W.
CLEVELAND

Davenport Locomotive Works,
Davenport, Iowa

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

Broderick & Bascom Rope Co.

Manufacturers of

Aerial Wire Rope Tramways
Yellow Strand Wire Rope
Wire Rope of Every Description

805-809 N. Main St. St. Louis, Mo.

TIMES ARE UNUSUAL

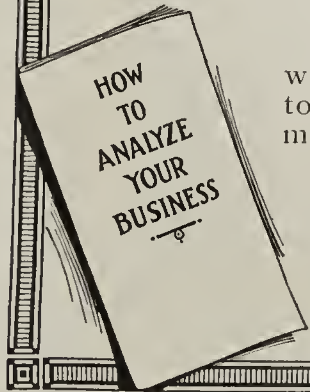
There are many cross currents in world affairs liable to greatly influence American business before another year is past.

If your business is expanding under the impetus of unusual orders, it is very essential that you handle the increased business most efficiently.—We can show you how.

If your business is quiet, you need the savings that more efficient factory management will insure.

Our advice is conservative and our work constructive. We shall be glad to confer with you regarding your manufacturing problems.

L. V. Estes, Incorporated
Engineers
McCormick Building, Chicago


HOW TO ANALYZE YOUR BUSINESS

SAY I SAW IT IN BRICK AND CLAY RECORD

THWING HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

Acme Brick Company, Marietta, Ohio.
Adel Clay Products Co., Adel, Iowa.
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Baker Clay Company, Grand Ledge, Mich.
Buckeye Firebrick & Clay Co., Scioto Furnace, Ohio.
Cork Brown Lime Company, Oshkosh, Wis.
Darlington Clay Products Co., Darlington, Pa.
Dressler-American Company, New Castle, Pa.
Eureka Brick Company, Richmond, Va.
Ludowici-Celadon Co., New Lexington, Ohio.
Milton Brick Company, Milton, Pa.
Minneapolis Clay Brick Co., Minneapolis, Minn.
Murphysboro Paving Brick Co., Murphysboro, Ill.
Heinz Roofing & Tile Co., Denver, Colo.
Puritan Brick Company, Hamden, Ohio.
Rookwood Pottery, Cincinnati, Ohio.
St. Lawrence Brick Co., La Prairie, Quebec.
Sebring China Pottery Co., Sebring, Ohio.
Straitsville Impervious Brick Co., New Straitsville, O.
Tuttle Brick Company, Middletown, Conn.
Upper Sandusky Tile Works, Upper Sandusky, O.
O. Zimbal Brick Company, Sheboygan, Wis.

Twenty-two New Users of THWING PYROMETERS during the past twelve months is not a bad showing while business was so dull.

Others are on the way

THWING INSTRUMENT COMPANY
437 North Fifth Street PHILADELPHIA

Marion GASOLINE SHOVELS

THIS New Marion is ready when *you* are; bigger than the toughest digging; runs at low cost; needs no licensed engineer. Owning and operating a Marion Gasoline Shovel means

You Can Really Do Your Work Successfully With One Man in the Cab

You want to remember THAT—for he has only one pair of eyes, and if he is going to do a good job, he must keep them on the work out in front.

Write us today for full information, mentioning whatever facts about your work will help us make our reply *more really useful* to you. Special Catalog 951 upon request.

THE MARION STEAM SHOVEL COMPANY
Established 1884 Station A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
68 Manufacturers of Excavating Machinery of Every Description

BRICK AND CLAY RECORD
SAY I SAW IT IN

made at Danville, Nicholasville and Valley Station, Ky. The plant was closed down for three weeks during the summer, but is now running to capacity.

LOUISIANA

The first contracts for the street paving in New Orleans will soon be let. The city is spending several million dollars for better streets and it is definitely understood that brick will cover many of them.

Pressed brick is coming into its own in New Orleans. There seems to be an "epidemic" of pressed brick fronts that has broken out simultaneously all over the city. It is just recently that contractors have been facing with this material to any great extent.

Fritz Salmen, of the Salmen Brick and Lumber Company, Slidell, La., and second vice-president of the National Brick Manufacturers' Association, was in Chicago recently, being accompanied by his wife and daughter. While in the city, Mr. Salmen was a visitor in the offices of "Brick and Clay Record" where he received a most cordial welcome and enjoyed a pleasant chat regarding happenings and conditions in the industry.

MAINE

The power and machine plant of the Brooks Brick Company, Brewer, Me., was destroyed by fire recently. The loss, estimated at $15,000, included engine and boilers, clay mixers and brick and tile machinery.

MASSACHUSETTS

The Payson Park section of the town of Watertown, Mass., one of Boston's exclusive residential sections, is split over the question of the granting of a permit for the erection of a building for use by the Paul Revere Pottery Company. At a recent hearing it was argued that the plant would cause a smoke nuisance and that it would be a very serious detriment to the section which is purely residential. The architects and others interested in the concern stated that the buildings would be so erected as to be an ornament and that the business was not one that would be any detriment to the community. The board of selectmen has the matter under advisement.

MICHIGAN

John S. Haggerty, a Detroit brick manufacturer, was elected president of the Michigan State Fair Association at the annual meeting of that organization held recently in Detroit.

A new school building costing $120,000 is to be erected in Marquette, Mich. It will be 111 by 210 feet in size, four stories high, and will be of tile and brick construction.

The bid of A. H. Prange, Grand Rapids, Mich., has been accepted for street paving in Belding, Mich. at a price of $39,195.59. It will be for brick on six-inch concrete foundation with a cement curb.

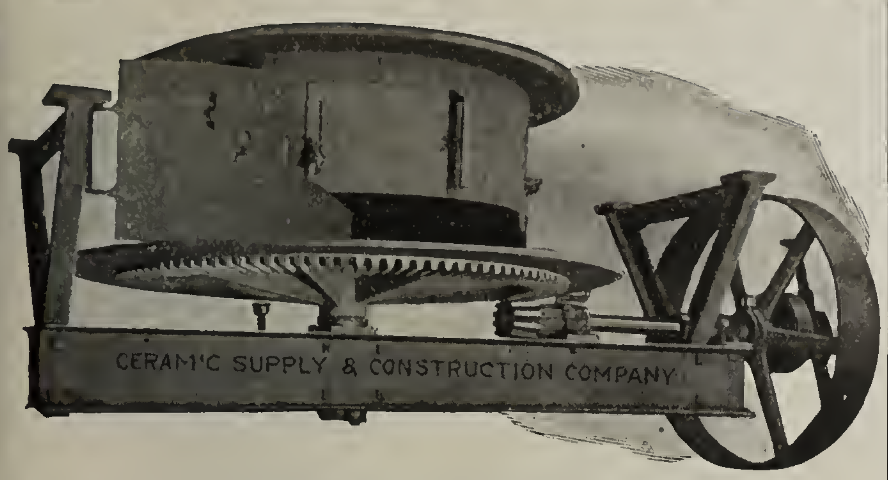
The new Buckingham Hotel, to cost $250,000, to be erected at Cass and Peterboro streets, Detroit, will be a ten-story affair, and will be faced with pressed brick and terra-cotta.

Plans are in progress for the Michigan Union building to be erected at Ann Arbor, Mich., by former students of the University. It will be a five-story structure, 168 by 200 feet in size. It will cost $750,000, and be built with brick.

The Central Michigan Clay Products Company, of Williamston, Mich., which recently organized with a capital stock of $100,000, will manufacture vitrified shale brick and hollow building tile. The company claims to have an unlimited amount of clay in sight for the production of exceptionally good building material.

One of the features of the Michigan State Fair which

(*Continued on Page* 456)



"Bolt It to the Bin"

The Columbus Feeder

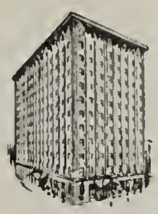
for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio



BUFFALO
450 Rooms 450 Baths
Rates from $\$1^{50}$ a day

DETROIT
800 Rooms 800 Baths
Rates from $\$1^{50}$ a day

CLEVELAND
700 Rooms 700 Baths
Rates from $\$2^{00}$ a day
300-room addition now building

To You Men Who Travel on Business

HOTEL accommodations ought to be bought like merchandise—on a full-value basis. You ought to want, and get, your money's worth. Hotels Statler specialize in the very sort of hotel accommodations the business man wants to buy. We do not merely rent you a room—we sell you *a service of comfort and convenience.*

We furnish you a *good* bed, in a clean, light, well-ventilated, pleasant room; a luxurious bath and shave in your own private bath-room. You don't have to ask for ice-water—a circulating system brings it to you; you don't have to ask for stationery—it's in your writing desk; you don't have to ask for a morning paper—it's left under your door before you wake (and there's no charge). Such things as these are but the starting point of the complete, interested service you get at Hotels Statler—where "the guest is always right." *And you get them whether you pay* $1.50 *or* $6.00 *for your room.*

You get more for your money—unquestionably—at a Hotel Statler. Ask anyone who has ever stopped with us.

HOTELS STATLER
BUFFALO - CLEVELAND - DETROIT

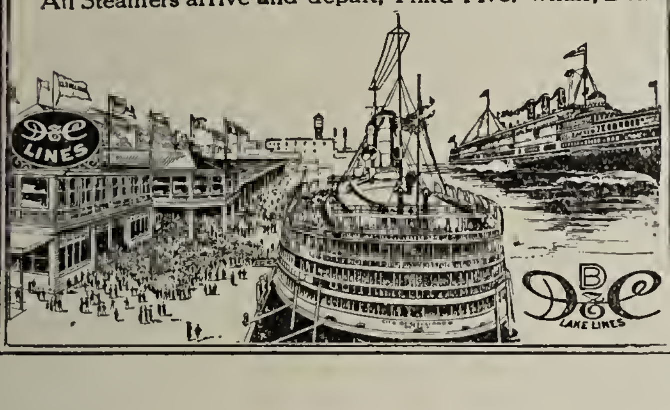
THE COAST LINE TO MACKINAC

DETROIT, CLEVELAND, BUFFALO, NIAGARA FALLS.
TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A LAKE TRIP FOR REST AND RECREATION

Have a real vacation on the Great Lakes, the most enjoyable and economical outing in America. The cool lake breezes, the ever-changing scenes along the shore, and the luxurious steamers of the D. & C. Line are positive guarantees that you will enjoy every minute of your trip, and return home refreshed and glad you went. Daily service between Detroit and Cleveland and Detroit and Buffalo. Four trips weekly from Toledo and Detroit to Mackinac Island and way ports. Two trips weekly, special steamer, Cleveland to Mackinac Island, no stops enroute except Detroit and Alpena. Special day trips between Detroit and Cleveland during July and August. Daily service between Toledo and Put-in-Bay. RAILROAD TICKETS AVAILABLE FOR TRANSPORTATION on D. & C. Steamers between Detroit and Buffalo or Detroit and Cleveland either direction. Send two-cent stamp for illustrated pamphlet and Great Lakes map. Address L. G. Lewis, G.P.A., Detroit, Mich.

Detroit & Cleveland Navigation Company
Philip H. McMillan, Pres., A. A. Schantz, V.P. & G.M.
All Steamers arrive and depart, Third Ave. wharf, Det.



You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Kansas City, Mo.
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St. Louis, Mo. Boston, Mass.

Gasoline Locomotive for Bach Brick Co.

Baldwin Gasoline Locomotives

are specially suitable for light switching service in and about brick-yards. They consume no fuel while standing, and are easily handled by one operator. A Baldwin gasoline locomotive has made a record of one year's service with a cost for repairs of less than $5.00.

A copy of Record No. 74, which contains further particulars, will be furnished on request.

The Baldwin Locomotive Works

Philadelphia, Pa., U. S. A.

Represented by

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A. Wm. Hinger, 722 Spalding Building, Portland, Ore.
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LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.–CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only **high in strength** but **dependably uniform**.

A perfect vitrified paving block of **your manufacture** used with a perfect cement filler of **Lehigh** Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use **Lehigh** Cement than all others combined.

You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH
CEMENT

was held at the permanent exposition grounds in Detroit, Sept. 6 to 15, was a solid brick rest room in the main exhibition building, erected by the Detroit Brick Manufacturers and Dealers' Association. It was the first time that the brick men of Detroit had made any display at the State Fair.

In the September 7 issue of this magazine it was stated that W. L. Bailey, whose office is in the Penobscot building, Detroit, was acting as Wisconsin representative for the Whitacre Fireproofing Company. It has since been found that this is an error and that Mr. Bailey does not cover Wisconsin, but Michigan. The Wisconsin territory of this company is taken care of from its Chicago office.

MISSOURI

The Fayette (Mo.) Brick and Tile Company has recently been incorporated with a capital stock of $25,000 by Carl Jaeger and others.

Plant No. 1 of the W. S. Dickey Clay Manufacturing Company at Deepwater, Mo., is being enlarged and remodeled. The plant has been closed for two months while this work has been going on, but since the improvements are about finished, operations will soon be resumed.

NEW JERSEY

Buhl-Zwicard and Company, Newark, N. J., has been incorporated to deal in brick and building materials. The capital stock of the new company is $100,000, the incorporators being John Buhl, Anna Buhl, Frank Zwigard and Anna Zwigard.

NEW YORK

A new twenty-five story office building is to be erected in the Grand Central Terminal zone in New York City, according to plans just made public. This skyscraper will be faced with a light colored face-brick and terra-cotta, the style of architecture being of the Italian renaissance.

The Atlas Building & Material Co., just above Hudson, N. Y., on the river front, closed a contract with the Knickerbocker Cement plant September 8, under which the Atlas Building & Material Co., will supply 350,000 brick for use in the construction of a new power house.

Nearly twice as much money has been put into the erection of new structures in the city of Schenectady, N. Y., the first eight months of this year as was expended during the same period last year, according to the monthly reports of Building Inspector Charles H. Hardstock. On the other hand, the number of permits issued for brick and frame buildings shows an increase of only about one-fourth. This would seem to indicate that buildings put up in 1915 have been about twice as substantial or of twice the value of those built last year.

The estimated costs of brick and frame buildings up to September in the two years shows a larger proportion of money has been invested in brick structures this year. For example, this year's total to date for brick buildings is $605,107, as against $234,245 last year, a difference of $370,862, or an increase of considerably more than one hundred per cent. This year's total for frame buildings was $912,683, as against $569,128, a difference of $34,555, or less than a one hundred per cent increase.

OHIO

The Rose Clay Products Company, Uhrichsville, Ohio, has increased its capital stock from $100,000 to $150,000.

An order for more than four hundred glass house tank blocks to be shipped to Japan has been received by a

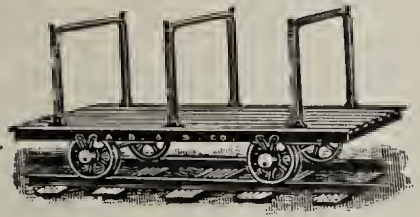
(*Continued on Page* 458)

SAY "I SAW IT IN BRICK AND CLAY RECORD"

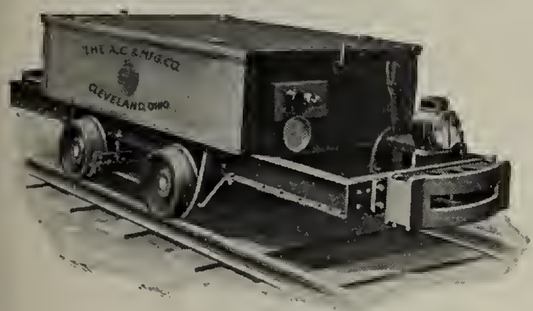
REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor

ATLAS
High Efficiency
Cars and
Electric Locomotives



No. 126 Double Deck Dryer Car



will meet your requirements. Let us send you catalogue and quote prices.

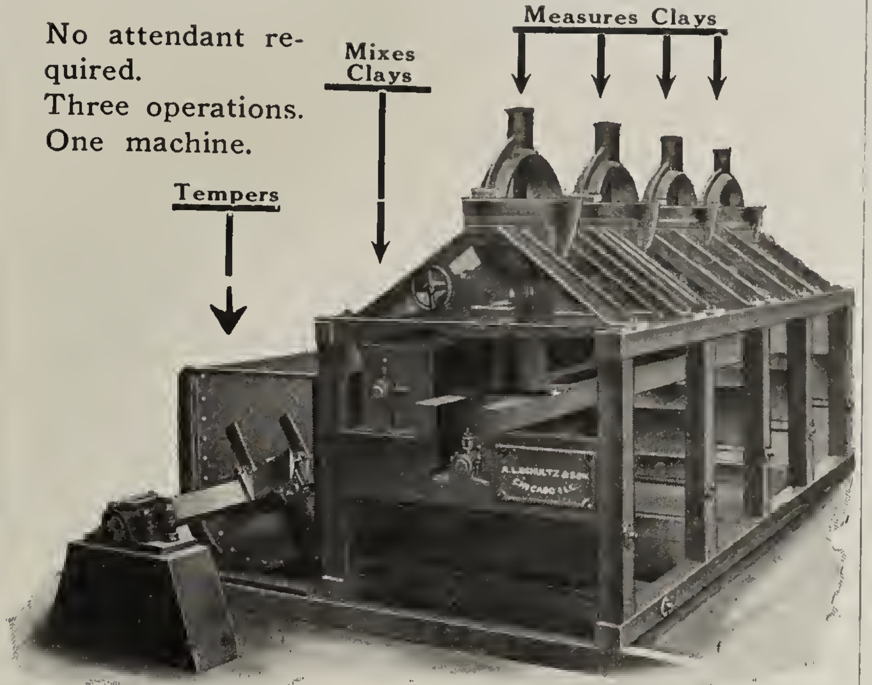
Storage Battery Locomotive for general use.

THE ATLAS CAR & MFG. CO.
Dept.
1287 Marquette Road, Cleveland, Ohio

The Schultz Proportioner—

It measures any number of different materials—it mixes intimately—it tempers the batch thoroughly. It is particularly adapted to terra-cotta, stoneware and brick plants—where perfect mixing of two or more materials is necessary.

No attendant required.
Three operations.
One machine.



A. L. SCHULTZ & SON
Clay Plant Engineers.
1675 Elston Avenue
Chicago *Write Today for Details* Illinois

Increase Your Profits
by making
SEWER PIPE

—

Our Booklet

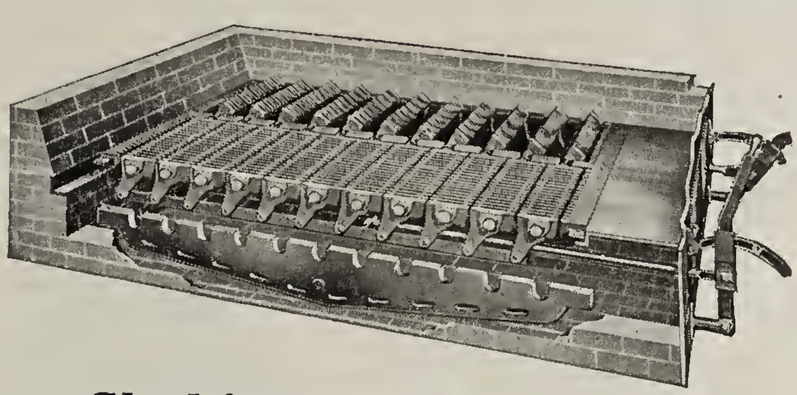
"Sewer Pipe and How to Make It"

contains thirty-eight pages, giving in detail the process of Sewer Pipe Manufacture. It is divided into two parts: Part I dealing with the American practice; part II with the English.

SENT ON RECEIPT OF PRICE, 25 CENTS.

BRICK AND CLAY RECORD.
445 Plymouth Court, CHICAGO

THE CANTON GRATE



Shaking and Dumping

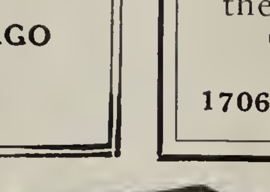
The Canton is the grate to keep your fires clean and free burning, with the least time and labor, and with the fire doors shut. Absolutely no loss of fuel while shaking. It is easily installed. Bars may be replaced while furnace is in operation.

Convenience, Economy, Durability

are three important features, and these combined with simplicity of parts, ease of installation and operation, must convince engineers of the unusual merit of Canton Grates.

Our catalog fully illustrates and describes them. Write for it today.

The Canton Grate Company
1706 Woodland Ave., N. W. CANTON, OHIO

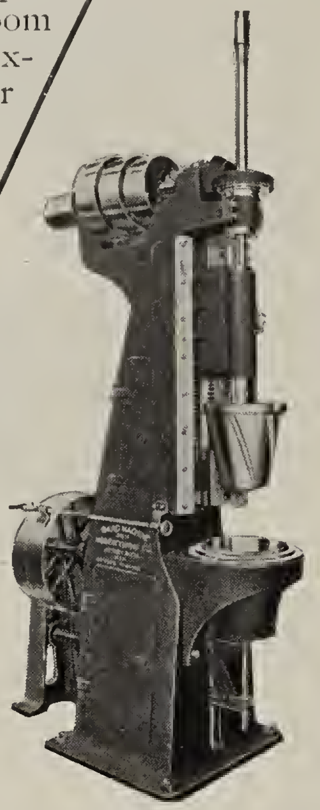


A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.



Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

The Illinois Supply & Construction Co.
Century Building, St. Louis, Mo.

—build this machine on a foundation of output. One four-mold machine in one day produces

The Grath Patent Peerless Brick Press

34000 34000 34000 34000 34000 34000 34000 34000 34000 DRY PRESS BRICK

Steubenville (Ohio) clay company. The order is said to be the largest of its kind ever placed in the United States.

The Portsmouth Clay Products Company Portsmouth, Ohio, has been incorporated by C. S. Carlyle and others with a capital stock of $10,000.

Charles L. Shannon, Jr., Cincinnati, Ohio, was chosen president of the Central District Tile and Mantel Contractors' Association, at Chicago. Mr. Shannon heads the company which was established some years ago by his father, the late Charles L. Shannon, and which has a wide reputation in the decorative tile business.

A million dollar corporation is being formed by Pittsburgh, Youngstown and Cleveland capitalists to erect and operate a fire-clay plant at Loveland, Ohio, southeast of Canfield. Chief among the organizers of the new company are officers and stockholders of the American Fire Clay Co., owners of the Loveland coal mine, in connection with which the new plant will be operated.

At a meeting of the interested parties in the New Philadelphia (Ohio) Paving Brick Company, recently, it was decided to organize the concern with a capital stock of $150,000, incorporation papers for which will be taken out in the near future. The sale of stock will be commenced immediately and it is expected that ground will be broken for the new plant within a month. It is the local opinion that this plant will be followed by other clay-working concerns, as tests have shown the clay in this vicinity to be of good quality.

In spite of the inroads of wood block as a paving material in Cincinnati, especially in the downtown districts, brick is holding its own fairly well. This is especially true in residence districts, where the property-owners have to consider not only the appearance of the street, but economy in maintenance. A recent letting was that of a contract for paving Morgan street with brick from Dover to Reading Road, for the sum of $9,377.70, Henkel and Sullivan getting the contract from the board of control.

Frank R. Cleveland of Cleveland, Ohio, who has been managing the brick plant at Unionville, Connecticut, for some time past, has been recalled to Cleveland and the plant is to be put under the management of a Hartford man. The yards formerly were owned by the New England Brick Company, but had been closed down for some time until Mr. Cleveland took charge, representing new owners. During his stay the business was almost doubled. Recently there was a strike at the yards which was settled by granting the men an increase in wages of twenty-five cents a day.

After considerable trouble of one kind or another the Everal Brick and Tile Company, Westerville, Ohio, is now running smoothly and turning out a large quantity of brick, hollow tile and drain tile. Mr. Everall has had a great deal of difficulty in getting his machinery to operate properly, one thing after another going wrong, from the engine room to the mouth of the die on the brick machine. Now, however, most of these troubles have been overcome, the plant is working regularly and is producing on an average of 20,000 brick, 12,000 pieces of hollow tile and about 1,000 drain tile daily.

September is showing a marked increase in the consumption of clay products in Cleveland, Ohio. While in July and August there was a falling off in building operations from the record showing made in May and June, a return to higher levels was strongly in evidence for the

(*Continued on Page* 460)

SAY I SAW IT IN BRICK AND CLAY RECORD

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Wood Moulds
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

Belting Service

MOISTURE PROOF, dust proof, acid proof—all but wear proof—do you know Gandy the Original Stitched Cotton Duck Belt.

The thousands and thousands of Gandy Stitched Cotton Duck Belts now in use are your best guarantee that it is WORTH knowing.

It costs only about one-third the price of leather belting and much less than Rubber belting. Yet 37 years of experience in all industries proves that it will do the work of either and *Equally as Well.*

Let us send you samples and full information?

The Gandy Belting Co.
732 W. Pratt Street
Baltimore, Md.

New York Office
36 Warren Street

Follow Me!

"The system installed at our plant has proven very satisfactory. We have burned a 22-foot kiln in as low as 26 hours. This time includes the water-smoking and high fire periods. We are burning coal as fuel at present, but have burned with wood alone and also in connection with coal with equally good results. Our average fuel consumption is about six tons coal per kiln."

This letter from an Ohio concern, and this report from a firm in Wisconsin

"Can burn either of Hook Kilns filled with drain tile in thirty-six hours including watersmoking. The average fuel consumption is five tons coal. Ware is uniformly burned and of good quality clear to the floor."

Are You Coming?

Listen—It's a fact that different companies have often taken tile that were so wet that they could be indented easily with the fingers and placed in the kilns. They set three or four dry courses on the bottom of the kiln, and then place the green ware above. They can burn this ware and secure a good, well-burned product, but of course, must give it a longer time to dry. It would be possible to fill the kiln completely with green ware, and burn it successfully, were it not for the fact that the green ware in the bottom would not support the weight of the other ware above.

So far all this has been written concerning the smaller type of kiln. But—

The system works equally well on large kilns and on kilns burning brick. We know that it will do all this on tile or brick, because we have seen it accomplished dozens and dozens of times. It is not a theory—it is a fact.

It will cost you only two cents to find out all about it, and investigation will pay. Write to the

Hook Patent Kiln Co.
Main Office: Vigo, Ohio
Canadian Office: 250 Dufferin St., Toronto, Ont.

first half of this month. This is accounted for largely by the rush of applications for permits covering flat buildings of all kinds, an ordinance carrying new restrictions on the class of structure having gone into effect during July. Permits for these buildings totaled more than a million dollars in the past four weeks. Many of these buildings now are in the course of erection and are demanding a large amount of clay products.

ONTARIO

The Milton Pressed Brick Company, Ltd., of Toronto and Milton, Ont., had an interesting exhibit of its various lines of brick at the Thirty-seventh Annual Exhibition of the Canadian National Exhibition Association held in Toronto August 30 to September 11. This company's product has been used in the construction of MacDonald College at St. Annes and at Guelph, also the Normal School, London, and the Drill Hall, Toronto, as well as various other public buildings.

PENNSYLVANIA

Pennsylvania was the leading clay producing state during the past year, reporting an output of 376,697 tons, with a value of $715,458, or over one-fifth of the total quantity and over one-sixth of the total value. Fire-clay is Pennsylvania's principal clay output and was marketed in 1914 at $519,505. New Jersey ranked second, producing 373,703 tons with a value of $648,684.

Progress is being made in the construction of the Wilkes-Barre-Hazelton Brick Company's plant at Hazelton, Pa. Two buildings have already been erected and the third is in course of construction. The plant will use all of the two hundred acres that have been leased and will make brick from clay found on the property.

For the relief of Erie (Pa.) flood sufferers, D. Warren DeRosay and employes of the Corry Brick and Tile Company, Corry, Pa., made up a purse of $50, which was forwarded to those who needed help in that stricken city early in August. This was the first contribution sent from Corry.

C. L. Leiby, recently of the firm of Leiby and Flurie, brick manufacturers of New Cumberland, Pa., have formed a partnership to erect a brick plant at that point. The site of the new plant will be on ten acres of clay land recently acquired by these parties. It is the present plan to have the plant in operation not later than October 1 with a capacity of 50,000 brick per day.

Edmund C. Huber, for years connected with the Kichline Brick Manufacturing Company, of South Allentown, Pa., died recently at his home in Allentown, from pneumonia. Mr. Huber was seventy-three years of age, and enjoyed robust health until stricken by pneumonia about a week before his death. He was a veteran of the Civil War, having served in the Fifteenth regiment of Pennsylvania volunters. He is survived by a widow and two brothers.

J. C. McAvoy, secretary of the McAvoy Vitrified Brick Company, Philadelphia, in a recent interview declared business to be of a most quiet nature during the past four or five weeks. He stated that the lull in business was not due to any particular reasons, but principally to the inactivity of local financiers in regard to building operations. However, he is most optimistic regarding the future and expects to transact a large volume of business in the next few weeks.

Excellent reports are being received from the brick

(*Continued on Page* 462)

SAY I SAW IT IN BRICK AND CLAY RECORD

Seven Sizes
$950 to $4350

There is a KisselKar Truck to Exactly Suit Your Needs

The new line of KisselKar Trucks was designed to meet every haulage requirement.

There is one to fit **your** business—to exactly suit the peculiarities of your delivery problems.

No necessity to adjust your system to the truck—the truck will adjust itself to your system.

KisselKar Trucks

The new series is priced as follows:

1000-lb. delivery	$ 950
¾ to 1-ton truck	1500
1 to 1½-ton truck	1750
1½ to 2-ton truck	2100
2½ to 3-ton truck	2750
3½ to 4-ton truck	3350
6-ton truck	4350

Our new truck portfolio is ready with full specifications and details, besides hundreds of illustrations. It is sure to interest you—send for it today.

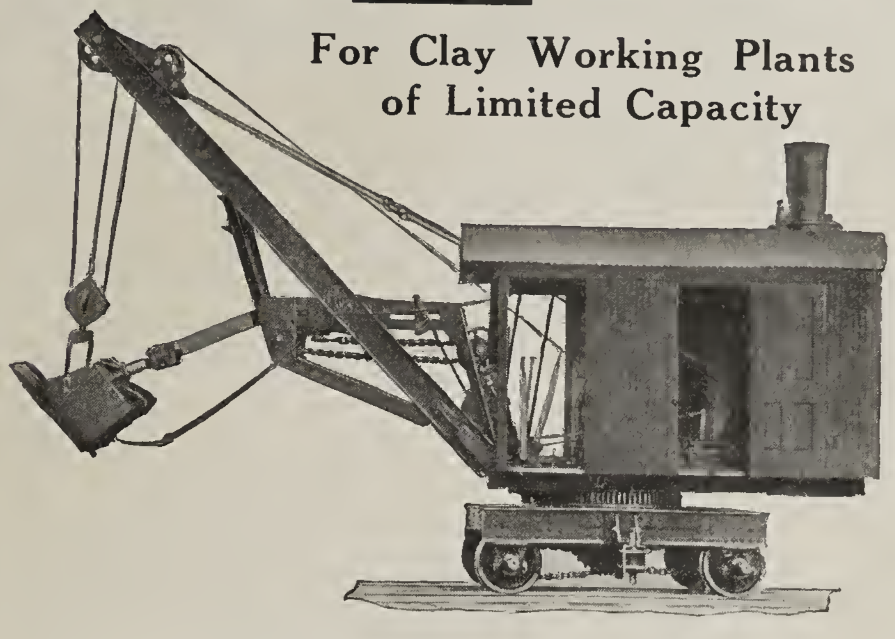
Kissel Motor Car Co., 568 Kissel Ave.
Hartford, Wis.

New York, Boston, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Iowa; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

THE THEW SHOVELS

Type AO—A Smaller Thew Shovel

For Clay Working Plants of Limited Capacity



MORE than 400 Thew Shovels are in use in clayworking plants, a fact which conclusively proves the adaptability of these shovels to this industry.

Until recently the Type O Shovel, weighing 18 tons, was the smallest and most generally used machine and the range of sizes adapted for clayworking varied from that up to Type 4, weighing 55 tons.

The success invariably experienced by clayworkers with Thew Shovels proved their design and operating features to be ideal, and emphasized the need of a somewhat smaller shovel for the plant with more limited capacity.

The Type AO Thew Steam Shovel was designed to meet this demand, and it affords the owners of these plants an economical advantage, equal to that enjoyed by their larger competitors.

The Type AO Steam Shovel is small, light, simple in operation, readily portable, and ample in every way for the requirements of the modern clayworking industry.

Weight, 15 tons; dipper ⅝ cu. yds. capacity; hoisting engines, 5x6 inches; swinging and crowding engines, 4x5 inches; boiler built to Massachusetts specifications for pressure up to 150 pounds.

Owners of clay plants who heretofore considered their plants not large enough to justify a steam shovel will be interested by obtaining additional information about this Type AO Thew.

SIGN and MAIL or USE FOR MEMORANDUM

The Thew Automatic Shovel Co., Lorain, O.

Send us at once literature about the Thew Type AO Shovel advertised in "Brick and Clay Record."

Name ....

Address ....

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Cost of Heat On Your Plant is High—

—no matter whether you are using fuel costing one or four dollars per ton.

—twenty-five per cent of your coal bills saved for one year, would pay a big dividend.

The Underwood Producer Gas Burning System
(Patented)

—will enable you to reduce your bills, almost halve them —if you will use it.

—the system is not a theory advanced, it is a positive, actual, proven success.

—we want to submit to you, facts and figures that convince.

The Manufacturers Equipment Co.
"Everything for the Clayworker"
Dayton, Ohio, U. S. A.

making concerns located in Clearfield county, Pennsylvania. Business is reported as being of a most satisfactory nature and many of the plants are working to capacity, several of the larger establishments, such as the Harbison-Walker plants at Stronack and Retort and the No. 1 and No. 2 works at Clearfield, are operating both night and day. The quality of the brick manufactured in this locality is known all over the country and large orders are being received from steel and powder plants, which are in need of fire-brick on account of large war orders.

TENNESSEE

The Kingsport Brick Company of Johnson City, Tenn., has been making preparations to manufacture sewer-pipe. This company has a brick plant with a daily capacity of 50,000.

Sloan and Company, of Chattanooga, Tenn., are the local representatives of B. Mifflin Hood Company, Atlanta, Ga., handling that company's brick.

It is reported that the new highway being built from the Morgan county (Tenn.) line through Scott county to the state line will be laid with brick on a concrete foundation.

The Key-James Brick Company of Chattanooga, Tenn., has been making a number of improvements during the past few months and now have a model plant. A. B. Adams who was formerly with the Chattanooga Sewer Pipe and Fire Brick Company is now assistant manager of the company while John D. Key is general manager. The output of the plant is 1,000,000 brick a month, but it is expected that this will be increased shortly by the addition of more kilns and machinery. This company obtains its power from the Tennessee river and has automatic stops in every part of works with which to shut down the machinery when necessary.

TEXAS

The Crisp Pressed Brick Company, Terrell, Texas, has decreased its capital stock from $30,000 to $20,000.

The plant of the Sunset Brick and Tile Company, Gonzales, Tex., was sold recently at auction, the property, including a stock of 500,000 brick, bringing $10,000.

The Athens (Tex.) Fire Brick Company is furnishing the hollow tile for partitions and backing up in the Texas Company Building. This plant is the southern branch of the Evans and Howard Fire Brick Company of St. Louis, Mo., and is one of the largest of its kind in the Southwest.

J. E. Fender, of the Acme Pressed Brick Company, Fort Worth, Tex., took a ten-day fishing trip during August, spending most of the time at Rollover on the gulf coast.

WASHINGTON

The headquarters of the Oregon Denison Block Company are to be removed from the Chamber of Commerce Building, Portland, to Tacoma, Wash.

WEST VIRGINIA

The Suburban Brick Company's plant, Wheeling, W. Va., has resumed operations after having been closed for two weeks. The company recently received a number of large orders.

Marion W. Blair, formerly of the Kushequa Keramic Company, has resigned his position to accept one with the Thornton (W. Va.) Fire Brick Company. Mr. Blair is a member of the N. B. M. A. Committee on Technical Investigations.

WISCONSIN

William M. Read, formerly in charge of the Excelsior Brick Company's tramway plant at Knapp, Wis., has accepted the position of superintendent of the Hydraulic-Press Brick Company's plants at Menominee, Wis.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

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Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
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Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
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Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
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Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
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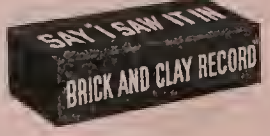

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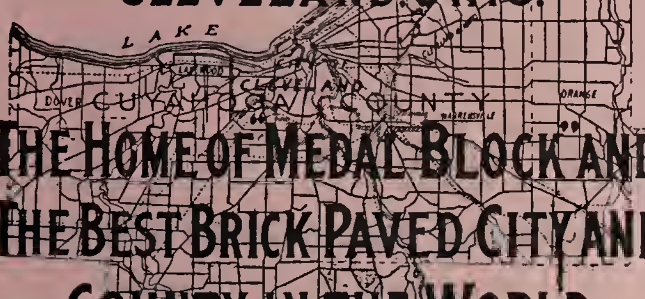

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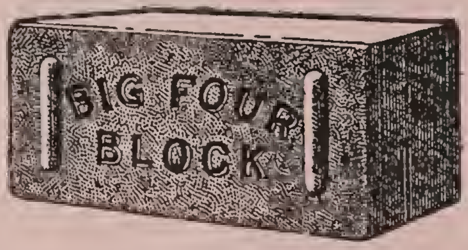

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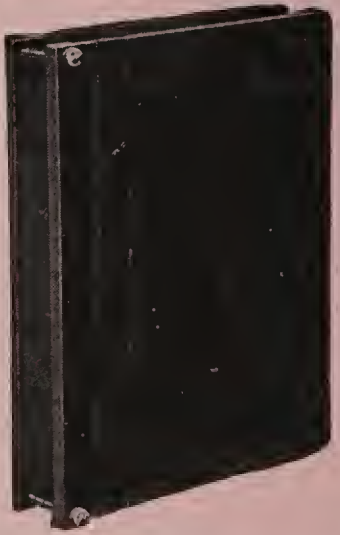

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Cement.
Lehigh Portland Cement Co.

Chains (Steam Shovel).
Woodhouse Chain Works.

Clay Feeders and Mixers.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Schaffer Eng. & Eq. Co.

Clay Handling Machinery.
Clearfield Machine Shops.
Link-Belt Co.
Weller Mfg. Co.

Clay Plants Complete.
Atlas Car & Mfg. Co.
Chambers Bros. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Clay Technologist.
Deavitt, H. M.

Clutches (Friction).
Chambers Bros. Co.
Link-Belt Co.
Schultz & Son, A. L.
Weller Mfg. Co.

Contracting Engineers and Machinists.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Manufacturers Equipment Co.
Smith Co., Claude.

Conveying Machinery.
Chambers Bros. Co.
Link-Belt Co.
Mathews Gravity Carrier Co.
Weller Mfg. Co.
Scandinavia Belting Co.

Cordage.
Broderick & Bascom Rope Co.

Counters.
Ceramic Supply & Cons. Co.

Couplings.
Bruce-Macbeth Engine Co.

Crushers.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.

Cutters, Automatic Rotary.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Marion M., Fdry. & Sup. Co.

Cutting Wires.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Webb Wire Works.

Dies.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Manufacturers Equipment Co.

Disintegrators.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.

Door Carriers (Dry Kiln).
Dry Kiln Door Carrier Co.

Dryer Cars.
(See Cars.)

Dryers.
American Process Co.
Chambers Bros. Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.

Dryers (Sand).
American Process Co.
Ceramic Supply & Cons. Co.
Jackson & Church Co.
Schaffer Eng. & Eq. Co., The.

Dry Pans.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Eagle Iron Works.
Jackson & Church Co.
Manufacturers Equipment Co.

Dynamos and Generators.
Westinghouse Elec. & Mfg. Co.

Efficiency Engineers.
Estes, Inc., L. V.

Electric Shovels.
Link-Belt Co.
Marion Steam Shovel Co.
Thew Automatic Shovel Co.

Electrical Furnaces.
Engelhard, Chas.

Electrical Instruments.
Brown Instrument Co.
Engelhard, Chas.
Taylor Instrument Companies.

Elevator Buckets.
Link-Belt Co.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.
Weller Mfg. Co.

Elevators and Conveyors.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Gandy Belting Co.
Link Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Weller Mfg. Co.

Engineers.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Deavitt, H. M.
Link-Belt Co.
Manufacturers Equipment Co.
Schaffer Eng. & Eq. Co.
Smith Co., Claude.
Trautwein Dryer & Eng. Co.

Engines (Gas).
Bruce-Macbeth Engine Co.

Engines and Boilers.
Bruce-Macbeth Engine Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.

Fans.
American Blower Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Jackson & Church Co.
Murray Iron Wks. Co.

Filter Presses.
Baird Machine & Mfg. Co.

Flexible Shaft.
Bruce-Macbeth Engine Co.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Blowers.
Marion Mach. Fy. & Sup. Co.

Freight Traffic Counselor.
Preetorius, I. W.

Frogs and Switches.
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Cincinnati Frog & Switch Co.

Furnaces.
Ill. Supply & Cons. Co.
Trautwein Dryer & Eng. Co.
Smith Co., Claude.

Gasoline Shovels.
Thew Automatic Shovel Co.

Gears.
Baird Machine & Mfg. Co.
Chambers Bros. Co.
Link-Belt Co.
Manufacturers Equipment Co.
Schultz & Son, A. L.
Weller Mfg. Co.

Grates and Grate Bars.
Canton Grate Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Gerlock, H. W.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Machine, Fdry. & Sup. Co.
Murray Iron Wks. Co.
Smith Co., Claude.

Gravity Carrier.
Mathews Gravity Carrier Co.

Grease.
Stock Xylite Grease & Oil Co.

Hand Power Presses.
Clearfield Machine Shops.

High Temperature Cements.
Johns-Manville Co., H. W.

Hoists.
Chambers Bros. Co.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Block Machinery.
Chambers Bros. Co.
Manufacturers Equipment Co.

Hygrometers or Moisture Indicators.
Taylor Instrument Companies.

Inspection Tests—Consultation.
Deavitt, H. M.

Kilns.
Chambers Bros. Co.
Hook Patent Kiln Co.
Illinois Supply & Cons. Co.
Manufacturers Equipment Co.
Ohio Kiln Co.
Schaffer Eng. & Eq. Co., The
Smith Co., Claude.

Kiln Doors and Frames.
Gerlock, H. W.
Manufacturers Equipment Co.
Smith Co., Claude.

Kiln Lugs and Bands.
Gerlock, H. W.
Smith Co., Claude.

Lime Mixer.
Gerlock, H. W.

Link Belting.
Link-Belt Co.

THE BUYERS' DIRECTORY—Continued

Locomotive Cranes.
Link-Belt Co.

Locomotive (Electric).
Atlas Car & Mfg. Co.

Locomotives (Gas).
Baldwin Locomotive Works.

Locomotives (Steam).
Dewey Bros.
Davenport Locomo. Works.

Lubricants.
Stock Xylite Grease & Oil Co.

Manganese.
Roessler & Hasslacher Chemical Co.

Mechanical Draft.
Trautwein Dryer & Eng. Co.

Molds.
Baird Machine & Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.

Mold Sanders.
Manufacturers Equipment Co.

Motors—Electric.
Westinghouse El. & Mfg. Co.

Oils.
Stock Xylite Grease & Oil Co.

Oil Burners.
Chicago Brick Machy. Co.
Illinois Supply & Cons. Co.
Weller Mfg. Co.
Westinghouse Elec. & Mfg. Co.

Oil Engines.
Chicago Brick Machy. Co.
Weller Mfg. Co.

Oil Test Instruments.
Taylor Instrument Companies.

Packings.
Johns-Manville Co., H. W.

Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
Chambers Bros. Co.
Clearfield Machine Shops.
Manufacturers Equipment Co.

Pallets and Trays.
Ohio Galvanizing & Mfg. Co.

Patents.
Peck, Hubert E.

Paving Brick Filler (Cement).
Lehigh Portland Cement Co.

Perforated Sheet Metal.
Ceramic Supply & Cons. Co.
Hendrick Mfg. Co.

Pipe Coverings.
Johns-Manville Co., H. W.

Poidometers.
Schaffer Eng. & Eq. Co.

Portable Track.
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co., The.

Potters' Machinery.
Baird Machine & Mfg. Co.

Power Plant Equipment (Complete).
Jackson & Church Co.
Link-Belt Co.
Murray Iron Wks. Co.
Taylor Instrument Companies.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Link-Belt Co.

Presses—Sewer Pipe and Tile, Nozzle and Sleeve, Tuyere and Shape Brick.
Baird Machine & Mfg. Co.

Producer Gas Engines.
Bruce-Macbeth Engine Co.

Pug Mills.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Schultz & Son, A. L.

Pulleys—Cast Iron, Clutch and Wood.
(See Supplies.)

Pulverizers.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.

Pumps.
Ceramic Supply & Cons. Co.

Pyrometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Englehard, Chas.
Price Electric Co.
Sander Instrument Co.
Stupakoff Laboratories.
Taylor Instrument Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.

Quartz Glass Articles.
Englehard, Chas.

Radiation Pyrometers.
Taylor Instrument Companies.

Rails (Frogs and Switches).
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Cincinnati Frog & Switch Co.
Foster Co., L. B.
Frank, M. K.

Railway Equipment (Industrial).
Atlas Car & Mfg. Co.
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Cincinnati Frog & Switch Co.
Davenport Loco. Works.
Foster Co., L. B.
Gerlock, H. W.
Manufacturers Equipment Co.

Rattler.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

Recording Gages.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Price Electric Co.
Sander Instrument Co.
Taylor Instrument Companies.

Represses.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.

Resistance Thermometers.
Englehard, Chas.

Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Cons. Co.

Roofing Tile Machinery.
Manufacturers Equipment Co.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.

Sand Dryers.
American Process Co.
Jackson & Church Co.
Schaffer Eng. & Eq. Co.

Sand Lime Brick Machinery.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.
Illinois Supply & Cons. Co.
Jackson & Church Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Eagle Iron Works.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Hendrick Mfg. Co.
Link-Belt Co
Schofield-Burkett Cons. Co.
Weller Mfg. Co.

Sewer Pipe Machinery.
Manufacturers Equipment Co.

Silent Chain Drives.
Link-Belt Co.

Steamers (Clay).
Schaffer Eng. & Eq. Co., The.

Steam Gages.
Brown Instrument Co.
Taylor Instrument Companies.

Steam Shovels.
Marion-Osgood Co.
Marion Steam Shovel Co.
Thew Auto. Shovel Co.

Steel Ties.
Cincinnati Frog & Switch Co.

Sprocket Wheels.
Link-Belt Co.

Supplies.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Eastern Machinery Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Switches and Frogs.
Cincinnati Frog & Switch Co.
Buckeye Rolling Mill Co.
Atlas Car & Mfg. Co.
Toronto Fdry. & Machine Co.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Taylor Instrument Companies.
Thwing Instrument Co.

Tie Plates.
Cincinnati Frog & Switch Co.

Tile Machinery.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Manufacturers Equipment Co.

Time Clocks.
Hardinge Bros., Inc.

Trade Names Registered
Peck, Hubert E.

Transfer Cars.
Atlas Car & Mfg. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.

Trucks (Auto).
Kissel Motor Car Co.

Turntables.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co., The.

Unloading Devices for Pans.
Clearfield Machine Shops.

Wagons.
Manufacturers Equipment Co.

Watchman's Clocks.
Hardinge Bros., Inc.

Waterproofing.
Johns-Manville Co., H. W.

Wet Pans.
Chambers Bros. Co.
Jackson & Church Co.

Wheelbarrows.
(See Barrows and Trucks.)

Wheels and Axles.

Winding Drums.
Ceramic Supply & Cons. Co
Chambers Bros. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Weller Mfg. Co.

Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

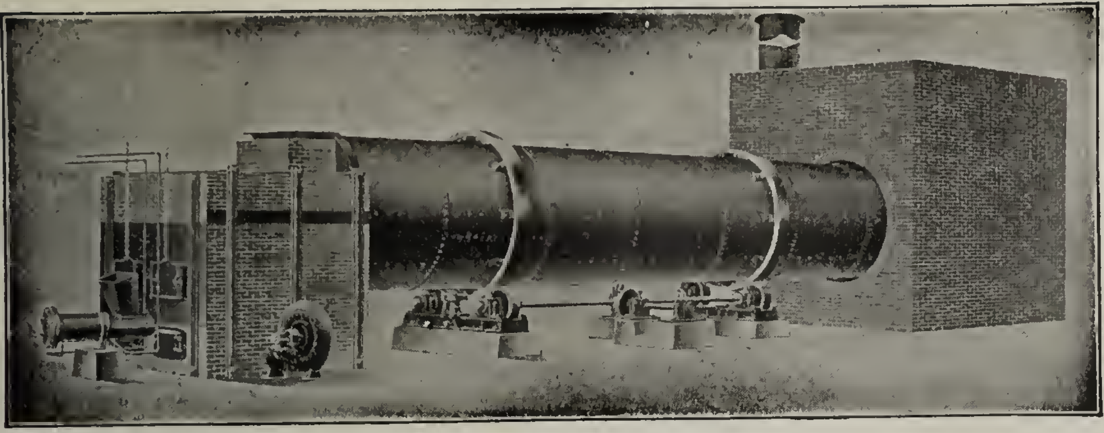
Look Out for Winter!

DON'T let freezing temperature catch you again with the same troublesome old heating apparatus in your drier! Even if you're not ready for a complete new drying plant, let us figure with you *now* on installing

The Standard Heating System

in your present drier. This system is *self-draining*. It doesn't need special attention, no matter how cold the weather gets. All expansion pipes are *horizontal*. There is no drop at either end of the system to pocket the condensation and stir up trouble. Write for an estimate. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

SAY I SAW IT IN BRICK AND CLAY RECORD



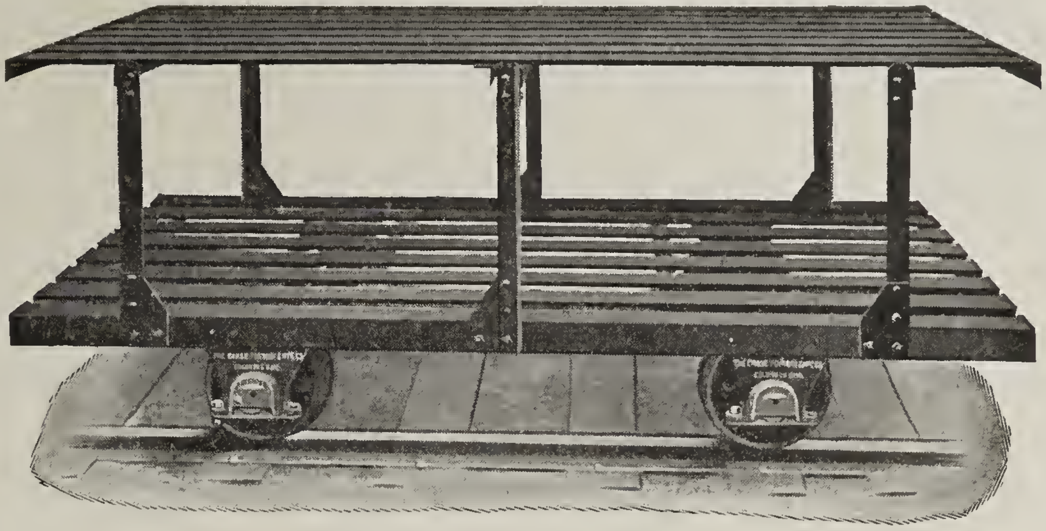
ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON
It Assures Uniform Product
YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

THE CHASE DRYER CARS
With patented flexible and reversible boxing and roller bearings
The *Best Equipment* is the Equipment that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



OSGOOD
"18" ¾-yd. Traction Revolving Shovel with independent steam steering engine, also combination hand steering operated from either side of shovel.

The ~~Marion~~ Osgood Company
Marion, Ohio, U. S. A.
Eastern Office: 51 State Street, Albany, N Y.

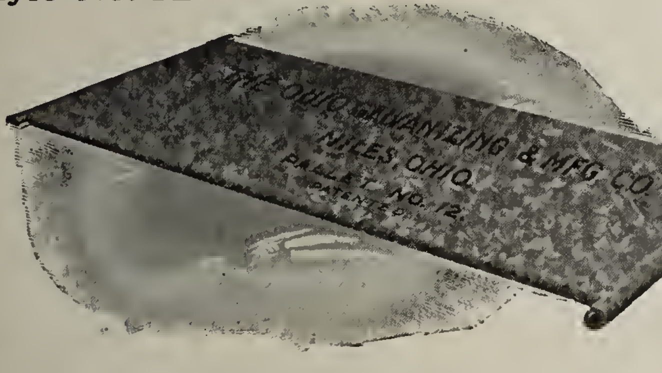
Chicago Agency:
The M-C-B Co., McCormick Bldg. Phone Har. 6365.

New York Agency:
M. E. Davis,
1682, 50 Church St.

Philadelphia Agency:
J. M. Reed Co., Inc.,
516 Commercial Trust Bldg.

STEAM SHOVELS DIPPER DREDGES

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

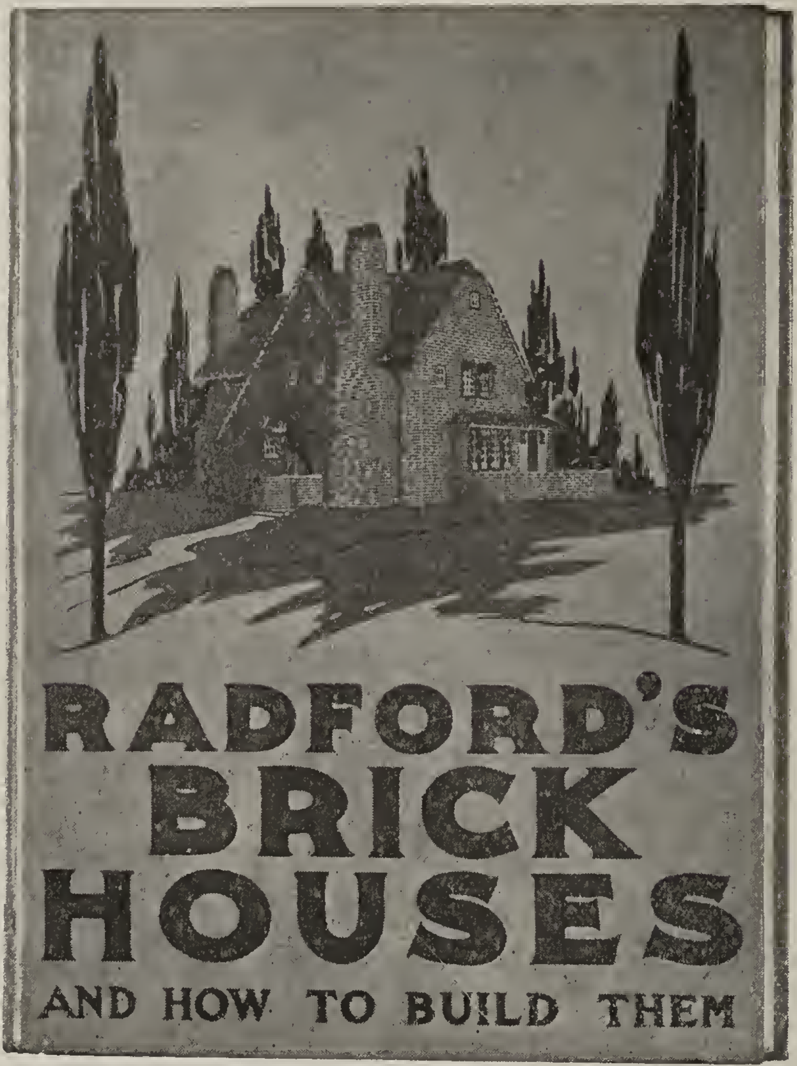
Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD



BRICK HOUSES

And How to Build Them

This book is a complete and clear manual of brick construction, designs and details. It tells what every builder should know of the classification and measurements of brickwork, together with architect's drawings of framing for brick houses and the use of brick veneer.

Up-to-Date and Approved Methods

This book also tells of the miscellaneous uses of brick, including ornamental brick and tile work, chimney and flue construction, brick fireplaces, brick sewers, cisterns and flush tanks, etc. It tells the carpenter and builder everything he should know to undertake brickwork and how to make a success of every job in which brick is used. It is so clearly illustrated by details that there can be no uncertainty in any builder's mind as to each successive step to be taken.

Beautiful Designs Shown

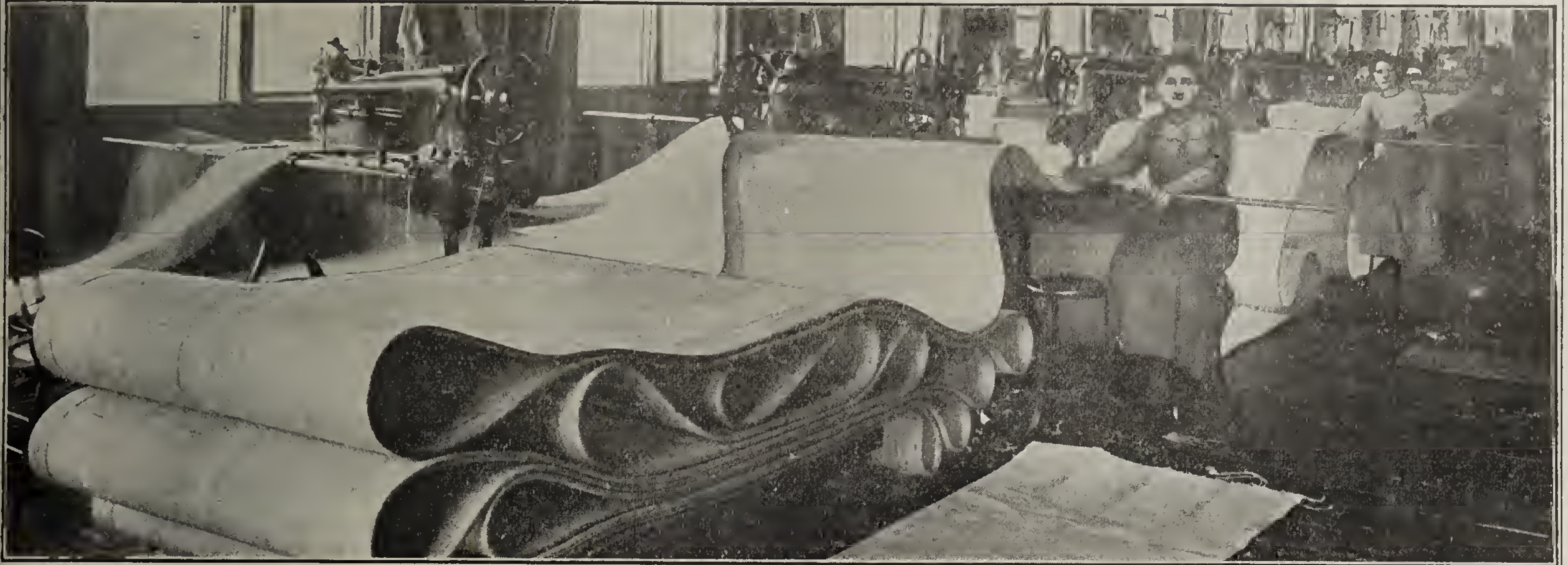
Over sixty designs of the very best modern architectural work are presented in this book. These designs are of attractive, substantial, homelike brick houses of many types. Specifications and working drawings for one of these homes are given in Ideal Homes, August 4th issue of "Brick and Clay Record."

Price, Postpaid, - - - - - - - - $1.00

BOOK DEPARTMENT
BRICK AND CLAY RECORD
CHICAGO

SAY I SAW IT IN
BRICK AND CLAY RECORD

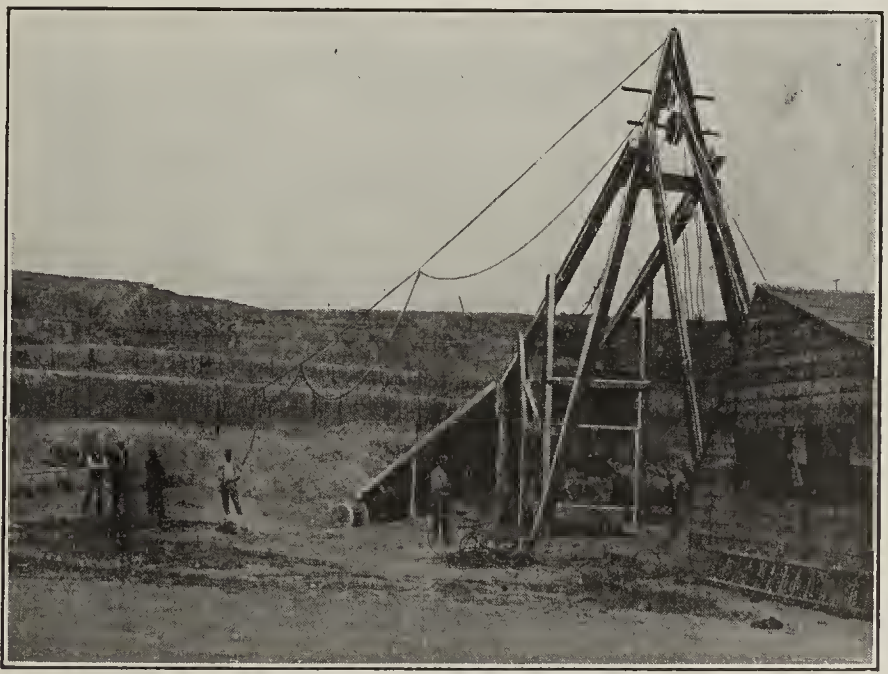
Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

Three Hundred Cubic Yards of Tough Clay in One Day



That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will **dig and deliver**—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

When the Demand for Brick is Slack

Is the time to improve your plant operation and secure reduced operating costs.

Others have done it by installing Westinghouse Motors and by using Central Station Power.

Our power engineers have studied the power requirements of clay working plants and have helped many companies to save money.

How they did it makes a very interesting story. Their services are free.

Westinghouse Electric & Manufacturing Co.

Sales Offices in All Large
American Cities

East Pittsburgh,
Pennsylvania

These Men Used to Spend Half Their Time Pushing Empty Wheelbarrows

The other half was the only part of a day's work that was productive. But the boss had to pay the same price for the empty barrows that he did for the full ones.

Now the men find their work easy and pleasant, and they are making more money because the boss is more prosperous.

Send for detailed information and illustrated catalog.

This Gravity Conveyer Solves the Brick-Handling Problem

The Mathews Patented Gravity Brick Conveyer is old enough to be well established, but still young enough to be a novelty to those who have never seen it in operation. In another year or two it will be the only method used for handling brick quickly and economically.

Mathews Gravity Carrier Co.

BRANCH OFFICES
IN ALL LEADING AMERICAN CITIES

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:-TORONTO, ONT. LONDON, ENG.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

DOES IT PAY TO HAUL DEAD LOAD?

Although clearly set forth in Bulletin B, we find that the following point needs the emphasis of a special advertisement.

In the old type of tramway with underhung buckets the dead weight of the buckets alone is usually about equal to the live weight transported. But there are as many buckets returning empty as are going out loaded; hence there is twice as much dead weight being moved at any moment **in the cars alone,** exclusive of hauling cable, as there is useful live weight. Each Lawson car, on the other hand, will transport a live load about six times its own dead weight. Allowing for the empties returning, this means that there is three times as much live weight moving at any moment as there is dead weight to carry it.

What We Do It With

Put in another form, this means that in the bucket tramways the dead load is **double the live load,** and in the Lawson tramway is **one-half the live load**—a ratio in favor of the Lawson transportation of 4 to 1. Moreover, this dead load, like "the poor, we have always with us," whether the tramway is running to capacity or not.

This is a bad matter, but worse remains, since the weight of the haul rope itself is usually twice as great for a bucket tramway as for the Lawson Tramway—and this again is non-paying dead load. All the above bears directly on the earning capacity. An amplification of this subject can be found in our Bulletin B under the heading of POWER REQUIRED.

Respectfully submitted,

AMBURSEN COMPANY (Tramway Department) **61 Broadway, New York**

Here is a Kiln Built with Common Sense

The Schaffer Semi-Continuous Kiln is revolutionary only in that it follows Nature's Laws. The average kiln builder gets confused in the maze of dampers, tunnels, forced draft systems, etc., and before he gets through he has upset Natural Laws and seeks to make fuel and heat do impossible things.

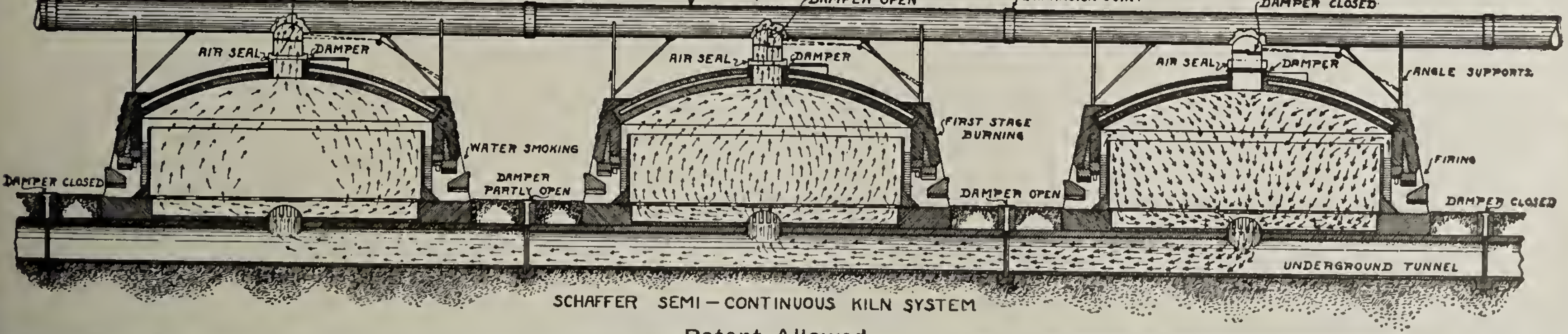
The Schaffer Semi-Continuous Kiln utilizes well-known principles

There is no magic about it—no hocus pocus—now-you-see-it-now-you-don't—stunts. Just plain, common sense, mixed with practical experience and engineering ability.

We have a pamphlet that tells all about this sensible kiln—SEND FOR IT

The narrow confines of this ad will not permit us to tell you just HOW and WHY the Schaffer Semi-Continuous Kiln is built, but we have a pamphlet that tells the story briefly, but completely. We would be pleased to send you a copy.

THE SCHAFFER ENGINEERING & EQUIPMENT CO., Inc, Tiffin, Ohio



SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

Patent Allowed

SAY I SAW IT IN BRICK AND CLAY RECORD

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—A practical clayworker to take stock and position in increasing brick and hollow-ware plant in developed territory. Unlimited clay and shale of superior quality. Two hundred miles of dredge ditch within fifty-mile radius. Nearest hollow block plant one hundred miles. Two railroads. Coal one dollar ton. Will bear thorough investigation. Exceptional opportunity. Address: 9-AW, care of "Brick and Clay Record." 9-2P

WANTED—Expert salesman. Must have experience in selling face-brick, and be able to work up trade among agents. State age, references, salary desired and whether married or single. Address: 9-D, care of "Brick and Clay Record." 9-1

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—Boynton, Oklahoma, wants a hollow tile and face brick plant. Have superior material and offer three-cent gas, free sites and low freight rates. Interested parties should address John H. Mosier, Muskogee, Okla. 9-2-2

CLAY LANDS.

We have clays for face and paving brick, sewer tile and finer products, located on railroads within 100 miles of Chicago, and want factories to utilize these clays. Address Thomas Crigler, Sec., Attica Commercial Club, Attica, Ind. 9-2-1

WANTED—POSITIONS.

SITUATION WANTED—By a man who thoroughly understands the clay business from pit to office, including the selling, and also thoroughly understands the manufacture of high-grade face brick, fire brick, common brick, sewer pipe and fireproofing, also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of dryer troubles and kiln troubles. A first-class handler of labor to get results. Wants to get with a concern where ability will be recognized. Address: 8-R, care of "Brick and Clay Record." 8-TF.

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacturing of common and face brick, pavers and drain tile. Have used all kinds of clays and up-and-down draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address 9-BA, care of "Brick and Clay Record. 9-2-3P

WANTED—Position as superintendent of brick plant. Thoroughly understand the manufacture of face brick, dry press and stiff-mud process; also common brick and fireproofing. Understand burning with oil, gas or coal. Can furnish A No. 1 references where I am employed. Sixteen years' experience. Address 9-BD, care of "Brick and Clay Record." 9-2-2P

GENERAL MANAGER of fire brick company in Pennsylvania desires to make change. Experienced in costs, manufacture, sales and office management. Personal interview solicited. Address: 9-H, care of "Brick and Clay Record." 9-1P

POSITION WANTED—As superintendent. Practical and experienced. Fire, building, paving, common, hollow and other block. Clay and shale. All processes. Address 9-BB, care of "Brick and Clay Record." 9-2-1P

WANTED—EQUIPMENT

WANTED—Small second-hand jaw or rotary crusher. State price and condition in first letter. What Cheer Clay Products Co., What Cheer, Iowa. 9-2-1P

FOR SALE—CLAYWORKING PLANTS.

FOR SALE OR RENT—On very reasonable terms, a most desirable face-brick plant. Located in Eastern Pennsylvania. Big money in it for capable brickmaker with very small capital. Address: 8-BA, care of "Brick and Clay Record." 8-2-1

FOR SALE—Tile plant, Indiana, seventeen acres, with 10,800 feet floor space; one new 24-foot kiln; machinery in good condition and making tile, with a good market. A bargain for some one with small capital. Address 9-BC, care of "Brick and Clay Record." 9-2-1P

BRICKYARD FOR SALE—The old and well-established brickyard of L. H. Cordes & Co., in the city of Watertown, Wisconsin, with land, machinery and equipment is offered for sale. Address: L. H. Cordes & Co. 9-3

GRAND RAPIDS, MICHIGAN—Modern plant of 60 acres, daily capacity 90,000, railroad sidings, only yard in city. No clay competition, running every day. A bargain if investigated. Grand Rapids Brick Co. 9-2P

SPARTA, MICHIGAN. For sale or lease—Brick nd tile plant. Clay supply unlimited. Great demand for sewer tile. Good investment for party with small capital. Address Clark, No. 29 Fountain St., West, Grand Rapids, Mich. 9-2-2P

FOR SALE OR LEASE—Lancaster (N. H.) Brick Company's plant. Unlimited clay and sand; side track to kilns. Will bear investigation. 9-3P

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAY LANDS.

CHANCE OF A LIFETIME—Celebrated Carter County, Kentucky, fire and plastic clays. Coal in connection, large acreage. Address: J. W. Henderson, Pres., Ashland, Ky. 9-3

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAYWORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—One 10,000 capacity brick outfit, consisting of one pugmill, disintegrator, etc. Machinery used less than six months; in good condition. Also one boiler and engine. Columbiana Savings Bank, Columbiana, Ala. 9-4

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and ironworking machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

WANTED AT ONCE—Men to learn brickmaking, for positions paying $90.00 to $175.00 a month, or with a view of conducting their own business at $3,000 to $6,000 a year profit. Men thoroughly trained to become experts in a few months' time; expert instructors; tools instead of books used; training given under ACTUAL WORKING CONDITIONS; day or night courses; tuition very low; terms easy. Plumbing and electricity, motion picture operating and drafting also taught. Big demand now for men in these profitable trades. Don't delay. Write for full particulars TODAY. B. W. Cooke, Director, Coyne National Trade Schools, 31 E. Illinois St., Chicago, Ill. 9-2

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Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

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of preventing gas or air leaks through the Kiln Masonry and the cracking, spawling and settling of the Fire Brick

J-M Treatment for Brick and Pottery Kilns

The air which streams into the kilns through leaks, cracks and joints in door arches, side walls and linings steal B. T. U's—often cooling down the kiln temperature 20%. Why not stop those leaks, boost your profits, and improve your product by using *J-M Heat Treatment* for your kilns? This treatment comprises—

No. 31—J-M High Temperature Cement

which is an ideal fire-brick mortar, because it seals the uneven surface between the fire-brick courses, and protects the brick edges against the destructive action of the flames. It vitrifies at a low temperature and gains in mechanical strength up to 3182 degrees F., its fusing point—thus forming a solid wall of brick and cement.

No. 32—J-M High Temperature Cement

is used as a paint for covering the interior of the kiln. It may be applied with a common whitewash brush and fills all cracks or blister holes in the kiln face. No. 32 is ideal for repairs and will prolong the life of the old kiln brick lining many more months in service. A supply should always be kept on hand for instant repair jobs.

No. 32—J-M High Temperature Cement

is an excellent material for painting pottery saggers. It will preserve them against cracking, and when treated they are non-porous to kiln gases.

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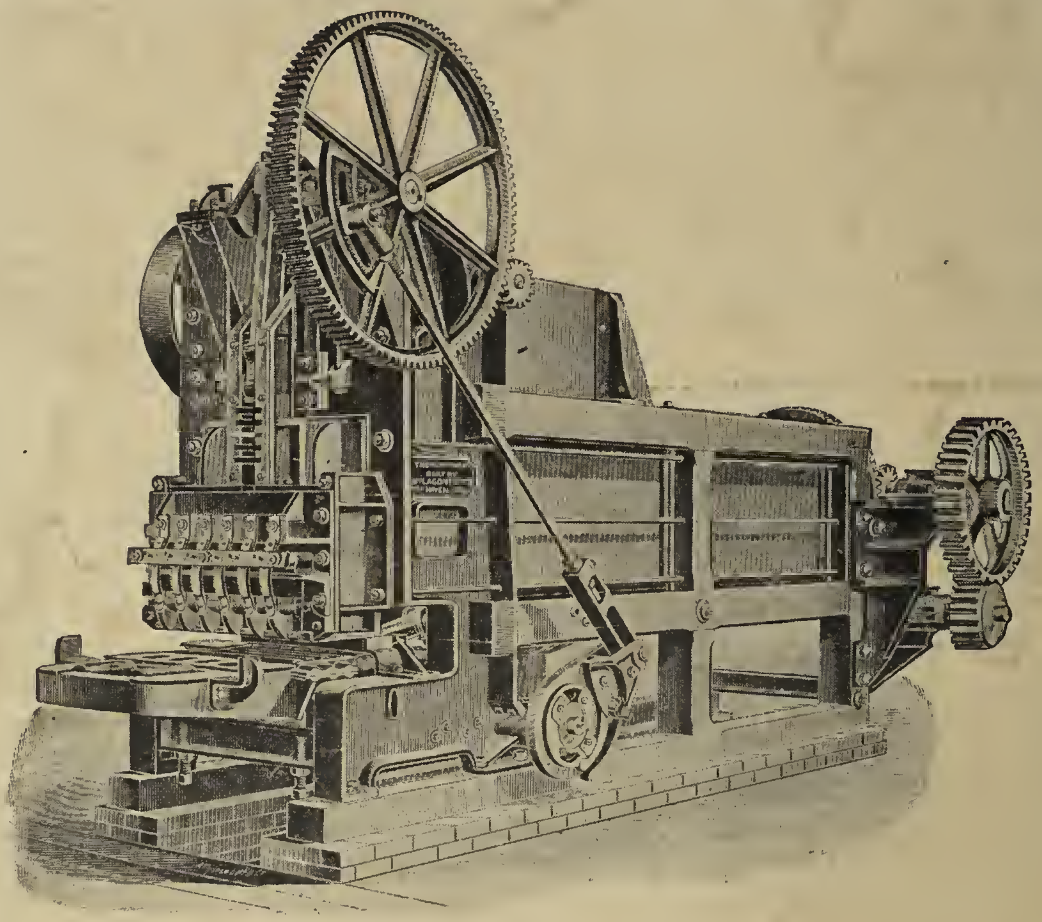
The New Word in the Brick Plant
EFFICIENCY
Finds its Full Definition in



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That Simplicity
of Construction
and Unusual
Strength mean
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THE NEW HAVEN NO. 2
HORIZONTAL BRICK MACHINE

Adapted to work any clay. ¶ Suitable for any yard that uses steam for power ¶ Makes solid brick with smooth faces and square edges

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THE FINAL TEST OF VALUE IS EARNING CAPACITY
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Builders of the Strongest Soft-Clay Brick Machine in the World

BRICK *and* CLAY RECORD

UNIVERSITY OF ILLINOIS
OCT 8 - 1915

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THWING PYROMETERS

Twenty-five new customers, in the ceramic field, in the past twelve months indicate that we are giving good service. Nearly all of those have installed a complete recording system.

Our Bulletin VII tells about
THWING HIGH RESISTANCE, MULTIPLE RECORD RECORDERS

THWING INSTRUMENT COMPANY.
437 N. Fifth Street, Philadelphia, Pa.

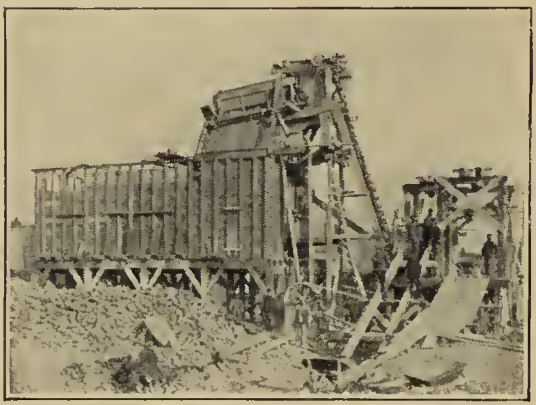
Vol. XLVII, No. 7 Chicago October 5, 1915

WELL ER-MADE

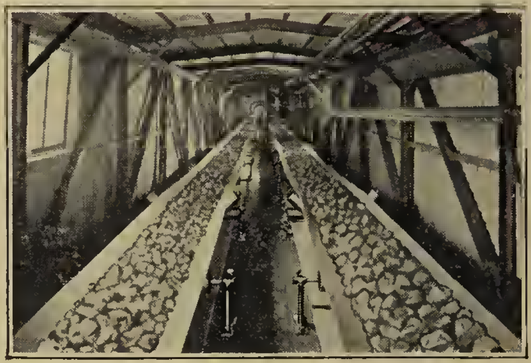
Elevating, Conveying and Power Transmitting Systems for Large or Small Plants

We do not know everything, but we certainly do know how to turn out machinery of this class, that will give you better service and stand more and harder usage than you can buy any place else.

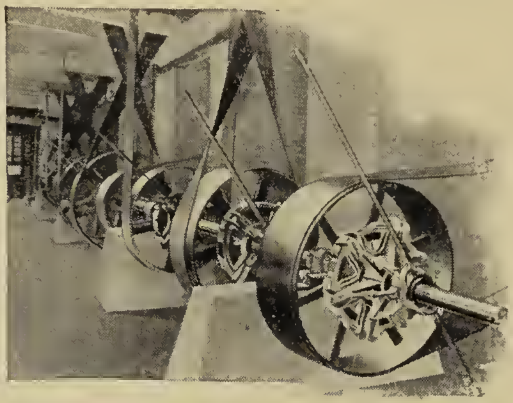
Our prices are right; they are not extremely low, neither are they unreasonably high. We simply give you a full solid dollar's worth of material for every dollar you pay us.



We know the right kind of elevator buckets and layouts to give you because we have an experienced clayman to look after this particular trade and we carefully study your conditions and give you the right buckets and arrangement for your particular requirements.



We know the right kind of conveyor for service. It may be a belt, scraper, screw, drag, apron or other type. Our line is the most extensive of any concern in the business and we are not hampered or held down to a single type because of limited patterns.



For transmitting power from main engine, main or individual motors, from shaft to shaft or to individual machine, whether it requires a 1,000 h. p. rope drive, a belt drive, small or large chain drives, or gears, we have equipment that will do this work for you in the most economical manner.

In the screening of clay, shale, flint, ganister, grog, coal or any other material around your plant, we can give you a screen that will do your work and do it right, because we have a practically unlimited line of stationary, shaking and revolving screens either open or enclosed.

Remember—Another season is drawing to a close. How much have you lost through not having a suitable Clay Storage Plant and Handling System?

IF WE CAN HELP YOU SAVE MONEY, WE BOTH GAIN

WELLER MFG. CO., CHICAGO

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DRYERS

THE LAST WORD IN CLAY PRODUCT DRYING

TRAUTWEIN DRYER & ENGINEERING CO.
417 SO. DEARBORN STREET
CHICAGO

AGAIN WE SAY:

THE CLAUDE SMITH KILNS

FOR BURNING CLAY PRODUCTS

ARE THE BEST WHICH EXPERIENCE AND LABOR CAN PRODUCE

Our Bulletin Tells You Why

CLAUDE SMITH COMPANY
KILN BUILDERS
PLYMOUTH BUILDING, CHICAGO, ILL.

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Standards of Practice for Business Papers

These standards were adopted by the Business Press Department of the Associated Advertising Clubs of the World, which recently closed its convention in the city of Chicago.

They have been subscribed to, and dictate the editorial policy and management of "Brick and Clay Record," and are here submitted to its advertisers and readers alike, that each may know the principles which govern this magazine from cover to cover.

"The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself:

"1. To consider, first, the interests of the subscriber.

"2. To subscribe to and work for truth and honesty in all departments.

"3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive.

"4. To refuse to publish 'puffs', free reading notices or paid 'write-ups'; to keep his reading columns independent of advertising considerations, and to measure all news by this standard: 'Is it real news?'

"5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity.

"6. To solicit subscriptions and advertising solely upon the merits of the publication.

"7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification.

"8. To co-operate with all organizations and individuals engaged in creative advertising work.

"9. To avoid unfair competition.

"10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function."

The letter "P" preceding a number refers to the "Pink Section'

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"You can do without

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but you can't do so well"

For particulars, ask the man with
the dividend producer, or write us

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Manufacturers and Engineers

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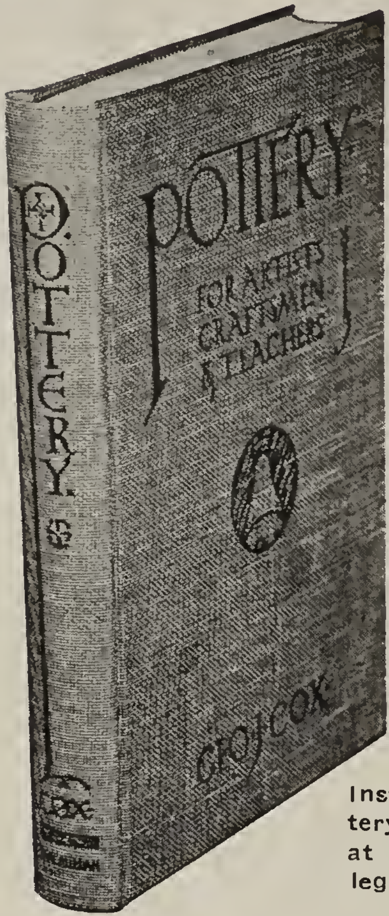

By
Geo. J. Cox,
A. R. C. A.
Instructor in Pottery and Modeling at Teachers' College, Columbia University.

Cloth - - - - - - $1.25 Postpaid

THERE have been many books on the subject of pottery, but few of them have approached the art from the practical point of view of George J. Cox in the present book. This is not to say that Mr. Cox has sacrificed the artistic for the utilitarian, but rather that he has combined with the artistic a splendid understanding of the needs of the craftsman. His volume is not over-elaborate as many of its predecessors have been; it is not over-technical; it does not go into the matter too deeply for the use of the novice; in short, it maintains the proper balance. In addition to this it possesses a number of other excellent qualifications. Practically every process described in the text is illustrated with a clear drawing; there is a concise statement as to how the equipment may be procured; there is simple and comprehensible direction for the beginner, and there is helpful suggestion for the more experienced artist. To those who know nothing about pottery making Mr. Cox's work will be found an adequate guide, while to the more or less accomplished artisan it will be of equal service because of its sympathetic interpretation and its abundant hints.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

Title	Price
Manufacture of Glazed Bricks (English Edition)	$2.50
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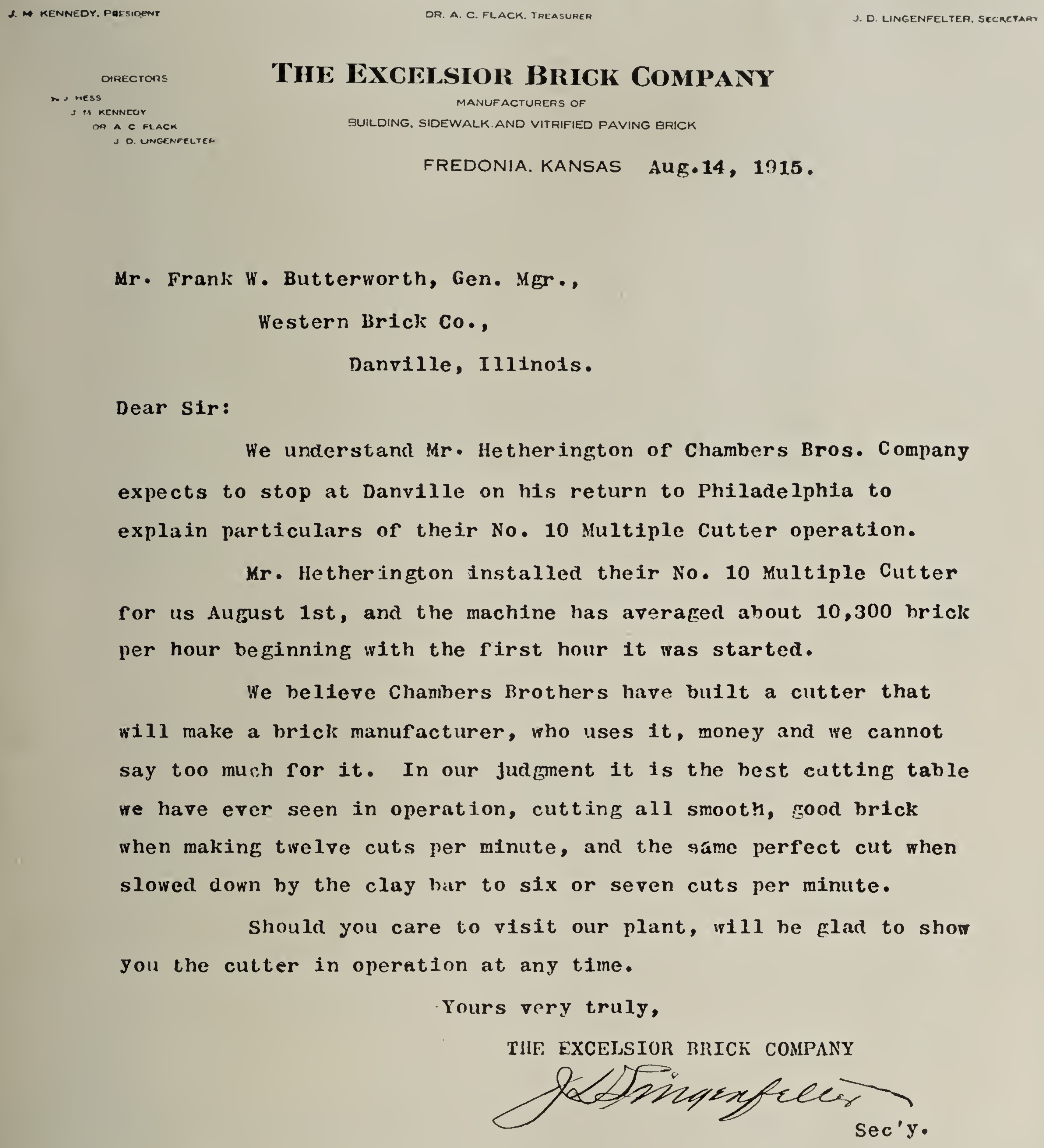
Address All Inquiries to

Brick and Clay Record's Book Department
445 Plymouth Court, Chicago, U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD

Read what one user of Chambers No. 10 Multiple Cutter says



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THE EXCELSIOR BRICK COMPANY
MANUFACTURERS OF
BUILDING, SIDEWALK AND VITRIFIED PAVING BRICK

FREDONIA, KANSAS Aug. 14, 1915.

Mr. Frank W. Butterworth, Gen. Mgr.,
Western Brick Co.,
Danville, Illinois.

Dear Sir:

We understand Mr. Hetherington of Chambers Bros. Company expects to stop at Danville on his return to Philadelphia to explain particulars of their No. 10 Multiple Cutter operation.

Mr. Hetherington installed their No. 10 Multiple Cutter for us August 1st, and the machine has averaged about 10,300 brick per hour beginning with the first hour it was started.

We believe Chambers Brothers have built a cutter that will make a brick manufacturer, who uses it, money and we cannot say too much for it. In our judgment it is the best cutting table we have ever seen in operation, cutting all smooth, good brick when making twelve cuts per minute, and the same perfect cut when slowed down by the clay bar to six or seven cuts per minute.

Should you care to visit our plant, will be glad to show you the cutter in operation at any time.

Yours very truly,

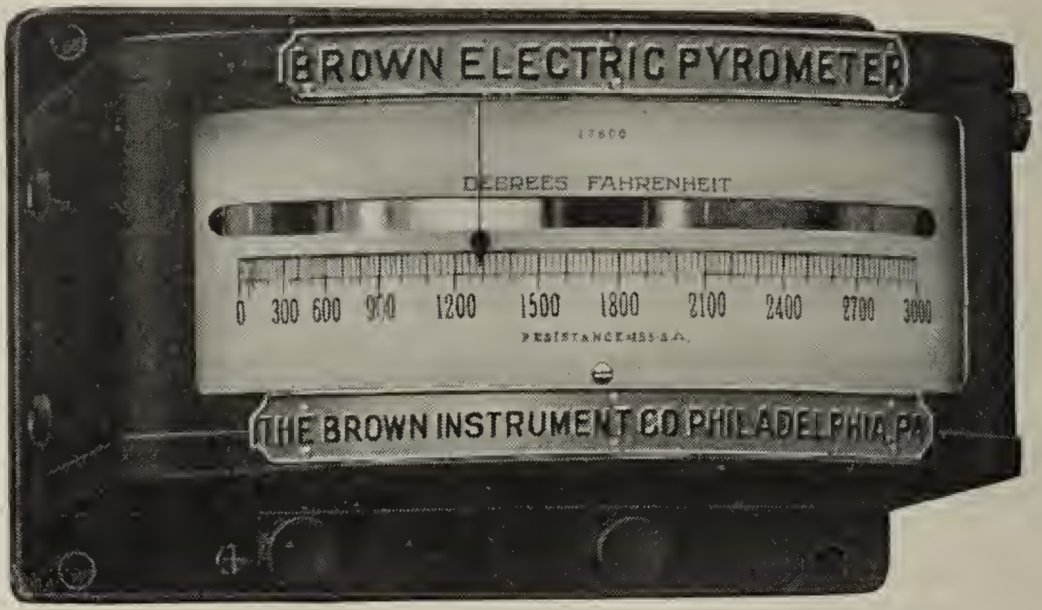
THE EXCELSIOR BRICK COMPANY

J. D. Lingenfelter

Sec'y.

CHAMBERS BROTHERS CO., Philadelphia, Pa.

Do You Operate Dryers?



Just suppose you had an instrument located in a convenient place with which you could read the temperature of all your dryer tunnels and that of the various waste heat ducts leading from your kilns, wouldn't it be far more satisfactory than going about from one place to another reading the temperatures on glass thermometers, of questionable accuracy, and which are always breaking? The new Brown Resistance Thermometer has small bulbs, all of steel, which are located at any number of points where it is desirable to know the temperatures, and wires are run to an indicating instrument with switchboard located near the dryer or in the office, if preferred. By simply turning the handle of the switch, the temperature of any bulb can be read.

This instrument costs little more than a complete equipment of thermometers, it entirely overcomes the trouble experienced with breakage of glass thermometers and its accuracy is within one degree. It operates on either dry cells, storage batteries, or 110 or 220 volt direct current lines.

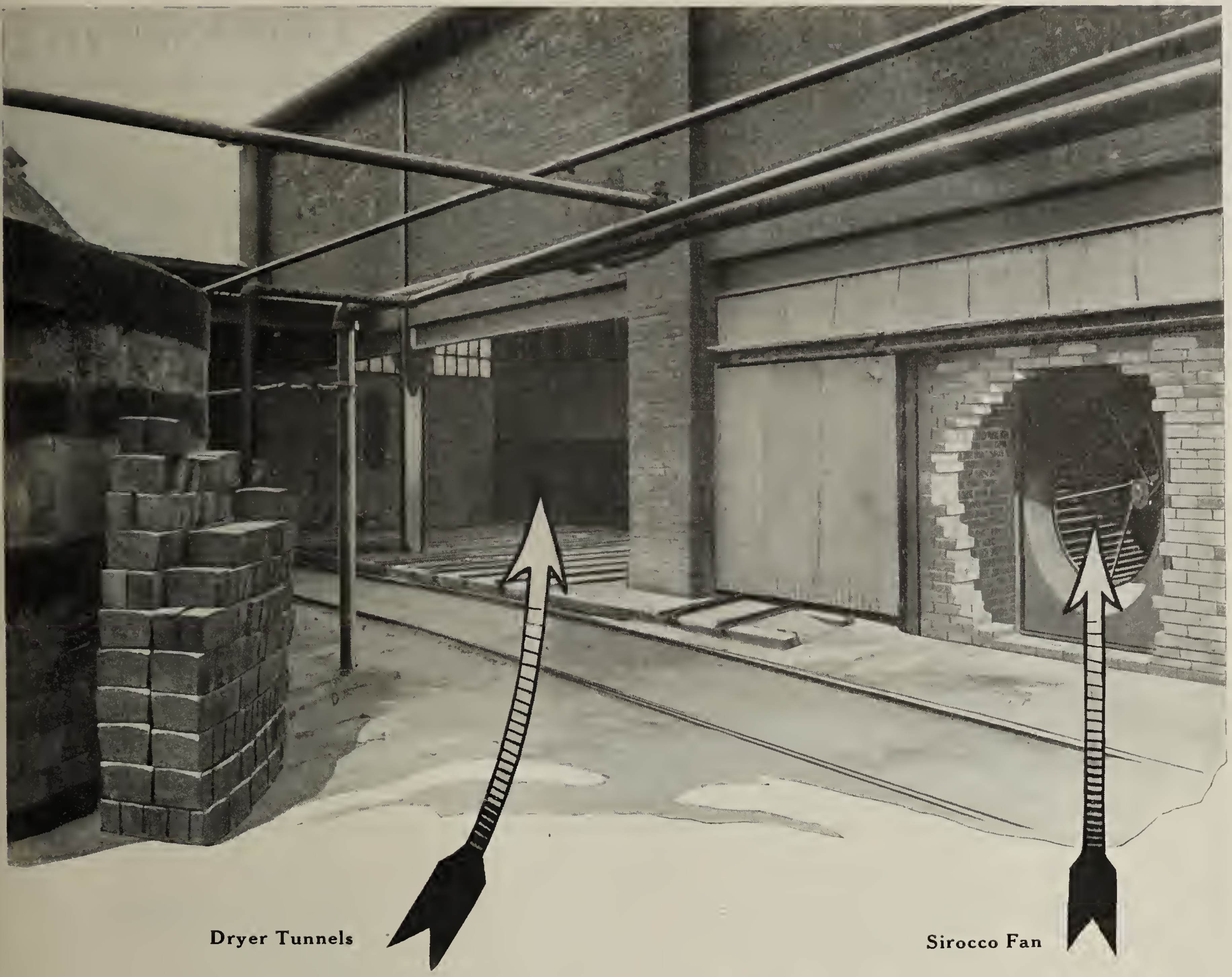
If you will give us the number of bulbs you would require, we will gladly quote you on a suitable equipment.

Made by the makers of the famous Brown Pyrometers for Kiln Temperatures.

The Brown Instrument Company

Established 1860 **Philadelphia, Pa.**

New York Pittsburgh Chicago



Sirocco
TRADE MARK.

Waste Heat Systems take a wasted element and turn it into a PRODUCTIVE ELEMENT

You might just as well mix up a batch of clay and only use half of it and throw the rest away as to burn fuel to generate heat for burning brick and not make use of the heat from the cooling kilns. The heat from the cooling kilns is just as good for drying as any other heat.

All you need to do is to handle that waste heat in the most economical way, same as the Ashland Fire Brick Co., of Ashland, Ky., are doing—they use a "Sirocco" Waste Heat System—the above illustration shows part of their plant.

Our Brick Engineering Department helped them in the selection of the proper arrangement of "Sirocco" System—we'll do the same for you. Write us about a "Sirocco" System for your plant.

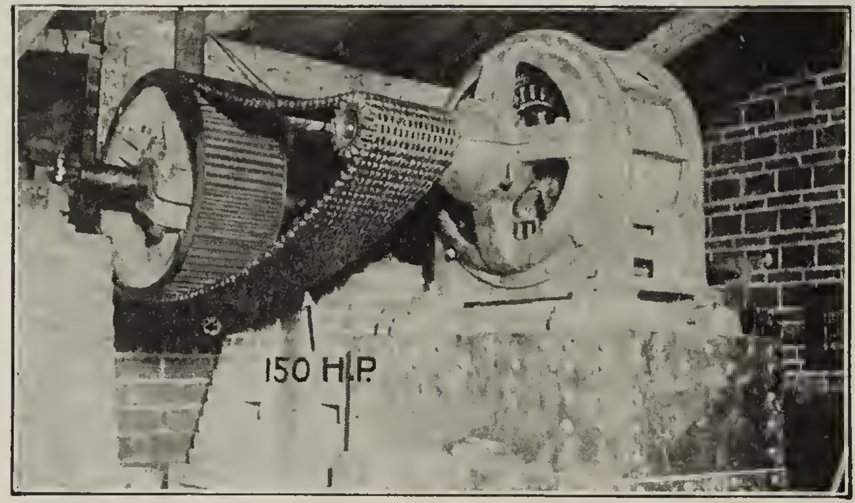
AMERICAN BLOWER COMPANY
DETROIT, MICHIGAN, U.S.A.
CANADIAN SIROCCO COMPANY, LIMITED, Windsor, Ontario, Manufacturers for Canada

SAY "I SAW IT IN BRICK AND CLAY RECORD"

"NINE YEARS OLD AND STILL GIVING GOOD SERVICE"

That's what the Superintendent of one of the largest Terra Cotta plants in the East recently said about the

LINK-BELT SILENT CHAIN DRIVE



Main Drive in Eastern Clay Plant. Note Compactness.

The ideal way to drive brick plant machinery because it is as flexible as a belt—positive as a gear—yet superior to both because it reduces shock—allows compact arrangement of machines—has long life with practically no attention or repair.

Read What that Same Superintendent Said Further:

> "* * * * We have three 50 H.P. drives on our wet pans, three 25 H.P. drives on our auger machines, one 20 H.P. drive on an air compressor, and a 15 H.P. drive on our rubbing beds. * * * * Chain drive on wet pan No. 3 has been running constantly for nine years and is still giving good service. The other two 50 H.P. drives have been in five years and are in excellent shape. * * * * We obtain a greater output. * * * * No loss of power through belt slipping. * * * * Cost of maintenance very much less than when we had leather belts."

No matter what your experience has been with drives and belts—or what you **think** you know about the Link-Belt Silent Chain Drive—it will pay you to investigate—to find out for yourself whether we can help you to make a better product at a lower cost of production. We claim we can—why not make us prove it? No trouble to us—no cost or obligation for you.

Just Write for Data Book No. 125—No Charge for it

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Los Angeles......204 N. Los Angeles St.
Minneapolis........Link-Belt Supply Co.
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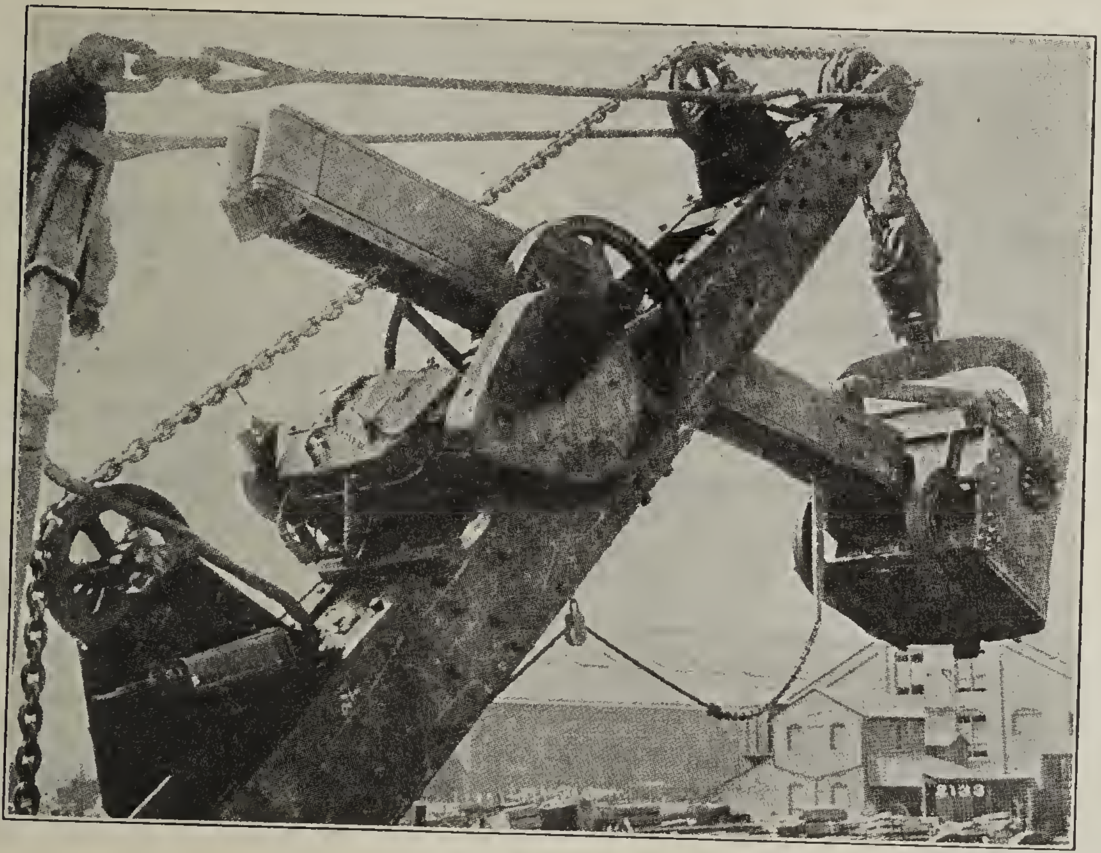
SAY I SAW IT IN BRICK AND CLAY RECORD

ELECTRIC SHOVELS

WHY
Pay for Hauling Coal
When Electric Power Transports Itself?



Electric Shovel Equipped with G-E Motors

Increase profits by equipping your shovel with G-E motors. Labor charges can be reduced 30%; repair bills cut in half and boiler and feed water troubles avoided.

No fireman and fire banking are necessary, nor is it necessary to leave a watchman on the job.

Electric shovels operate like a steam shovel and equal or surpass it in every respect.

The General Electric Company makes a complete line of motors for this service. Its recommendations are based on years of actual experience with existing electric shovels and on a thorough knowledge of shovel operation.

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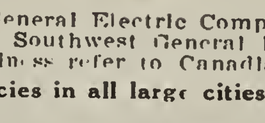
Motor Agencies in all large cities and towns

5475



Gravity and One Man

Operate a B & B Tramway

A strong point in favor of the B & B Two-Bucket Tramway System is its great economy.

Only one man is required for its entire operation, and where the grade is sufficient, gravity supplies all the power.

Snow, rain and sleet cannot affect our Tramways—they keep right on working.

Ask our Tramway Engineers to fully explain our Tramway System, as applicable to your plant. It's worth your while to write them—of course, you obligate yourself to nothing.

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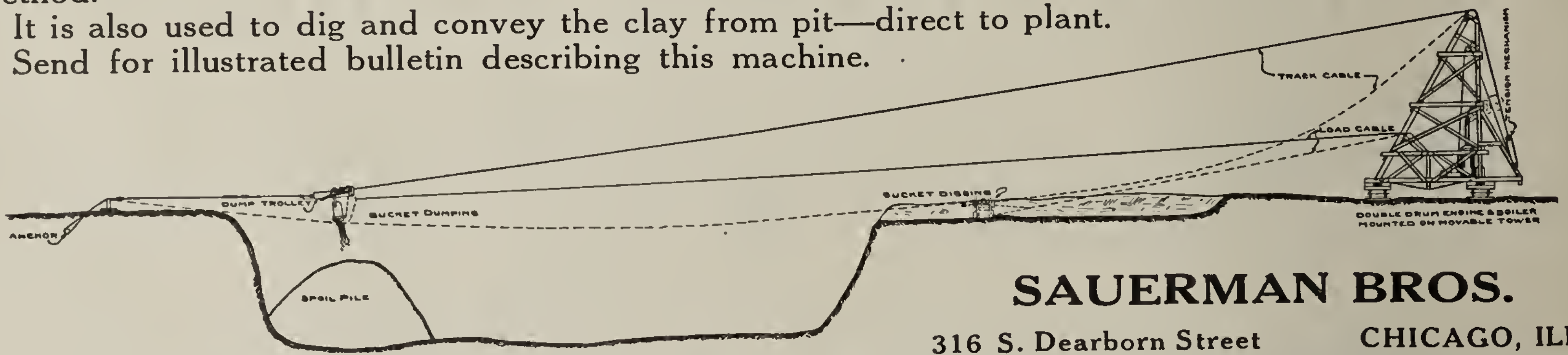
You can replace a series of machines and equipment by one machine, which combines the three necessary features—digging, conveying (a distance of five hundred feet or more) and dumping—at any desired point—all under the positive control of **one operator.**

The Sauerman Dragline Cableway Excavator
(Patented)

operated by a double drum friction hoist, and under the positive control of one man fulfills these requirements, and does the work more efficiently and more economically than any other known method.

It is also used to dig and convey the clay from pit—direct to plant.
Send for illustrated bulletin describing this machine.



SAUERMAN BROS.
316 S. Dearborn Street CHICAGO, ILL

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BRICK and CLAY RECORD

Chicago, October 5, 1915

Vol. XLVII No. 7

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A Semi-Monthly Record of the World's Progress in Clayworking

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The Editor's Corner

FROM NOW ON and until the building season opens in the spring, clayworking plants which produce materials that are used in building construction and in farm improvements, will either accumulate stock, or shut down.

This releases an army of clayworkers, some of whom will take well earned vacations, and others simply potter around their plants, adding to equipment, repairing and altering—or bemoaning the fact that the bank balance will not allow very extended purchases.

It is a good time, therefore, to consider the whys and wherefores of that lack of resources that stands in the way of a much needed improvement. What has prevented the plant in which your capital is invested, from giving you a proper return on that investment?

Is the plant properly balanced? Does it run to capacity every working day of the year, or of the season that you find it profitable to keep it going? What relation does the output bear to that capacity?

What is the weakest link in your manufacturing chain? Is it the clay supply, the pan, the screens, the machine room, the drier, the kilns or the storage sheds? Where do you come to a point that stops your production without reducing your overhead?

In your cost accounting system, or in your division of costs, which is the same thing, you will find that interest on invested capital and on borrowed money, rents, taxes, royalties, insurance, salaries to officers and office equipment make up a large part of the total operating expense. Everything that tends to decrease the amount of your output makes the per thousand or per ton charge of this overhead greater.

The difference between the cost per thousand or per ton, in a year when the plant runs full, and in a year when it runs to only part capacity, is nearly all of the difference between a fair profit and a serious loss.

The better equipment for clay gathering, the more powerful pan (or the additional unit), the larger screen, the better knives in the pugmill and the more efficient machine, the new dies, cutting table and off-bearing belt, the extra cars, the additional drier tunnels, the better built kilns and the extended sheds—each of these, if needed, are costing you more in their absence than they would cost to install.

If, at any point in your plant, some one of the processes of manufacture is slower than the rest, and so keeps all of the others from going "full speed ahead" it acts like a badly made splice in a wire cable—its individual weakness impairs the pulling power of the whole.

Take your superintendent into your confidence, and with him go over the records of the year. Look at the records of the days that the plant was idle, and see whether it was "hot kilns"—which does not always mean that the kilns are too few—or "wet clay" or a "busted steam pipe in the drier."

And when you have found out where the trouble is—when you are sure that you know what you know—don't be afraid to put the money into the device that will "round out the plant." Don't be misled by figures that show how the extra earning capacity of that one machine, or tunnel or kiln will not warrant the amount it costs—look at the other side of it—see the increased earning capacity that will come to all of the other parts of your plant on account of the increased output of that one machine, or tunnel or kiln.

Do not be afraid that next year will be as bad as this—just as this year was as bad as last. Labor is going to be higher, emigration will be much slower after the war is over than it was before it started. The stocks made with labor at present prices will be sure profit makers.

If you must close down this winter, use the time to make your plant a capacity plant—one that keeps the overhead low by making the output large. You will find money much more easy to obtain now, than later. The interest you will pay on funds borrowed for needed equipment will not be nearly as much as the amount you will lose in case your plant runs part time next year.

The Skyline of Dayton, Ohio. Here, in the City that was Flood-swept in 1913, the National Paving Brick Manufacturers' Association will Hold its Convention, October 11 to 14, 1915

"Public Service" is the Watchword of the Paving Brick Convention

Four Days Devoted to Cooperative Effort Toward Better Road Building Planned for Dayton Meeting

WITH THE PRESIDENT of the largest automobile club in the country as toastmaster, and numbering an ex-governor and a present president of a state university as speakers, the banquet that will be tendered the American Society of Municipal Improvements by the National Paving Brick Manufacturers' Association promises to be interesting.

The convention of the organization last named, originally scheduled for October 11th and 12th, has been extended to cover two additional days, and will begin its sessions on Monday, the 11th, and continue until Thursday, the 14th. The meetings will be held at the new Hotel Miami, in Dayton, Ohio.

Monday forenoon will be devoted to the registration of the members and guests and to committee meetings of the paving-brick association. At 11:30 A. M. a joint conference with the brick committee of the American Society of Municipal Improvements will be held, followed by automobile trips about Dayton. The brick committee has for its chairman Edward H. Christ, of Grand Rapids, Mich., its other members being Frederick J. Cellarius, of Dayton, Ohio; Henry Maetzel, of Columbus, Ohio; S. Cameron Corson, of Norristown, Pa.; H. K. McKay, of Baltimore, Md., and Elmer E. Colby, of Chickasha, Okla.

Tuesday will be marked by a very interesting session of the American Society of Municipal Improvements, to which everyone interested in good roads is invited, and in the evening the banquet, at which Judge Richard H. Lee, president of the Cleveland Automobile Club, will be toastmaster, will be held. Ex-Governor James M. Cox will speak, having for his subject, "The Benefits Arising from Co-operative Effort," and William Oxley Thompson, president of the Ohio State University, will talk on "Efficiency and Economy in the Expenditure of Public Moneys." This banquet will be an entirely masculine affair, the ladies being invited to a special banquet arranged for them by the Engineers' Club of Dayton, and held at the splendid clubhouse of that organization.

Secretary Blair has arranged the sessions of the paving-brick convention so that the officers and members of his society will have plenty of time to attend the Wednesday morning session of the Municipal Improvement Society, and in the afternoon automobile trips are planned, so that the good roads in and around Dayton may be seen and their construction criticized. In the evening, the American Society especially invites the paving-brick men to its session, at which the report of the committee on street paving (Frederick A. Reimer, county engineer of Newark, N. J., chairman), will be followed by an address by Will P. Blair, secretary of the National Paving Brick Association, who will have for his subject, "Brick Paving," with stereopticon slides. At this meeting also, A. D. Duck, city engineer of Greenville, Texas, will speak on "Vertical Fibre Brick Pavements," and William C. Perkins, of the Dunn Wire-Cut-Lug Brick Company, on "Vitrified Brick Construction of Streets and Roads."

In addition to the meeting of the American Society, which is called for Thursday morning, a sight-seeing trip has been planned, which will include the "Budget Exhibit" at Memorial Hall, in Dayton, and, following luncheon, a meeting at which the report of the committee on standard specifications, of which George W. Tillson, consulting engineer to the borough president, Brook-

The New Miami Hotel at Dayton, Ohio

RICHARD H. LEE
President Cleveland Automobile Club, Who will Be the Toastmaster at the National Paving Brick Manufacturer's Association Banquet

lyn, N. Y., is chairman, will be read. This will be followed by the report of the sub-committee on brick paving, of which Edward H. Christ, of Grand Rapids, Mich., is chairman.

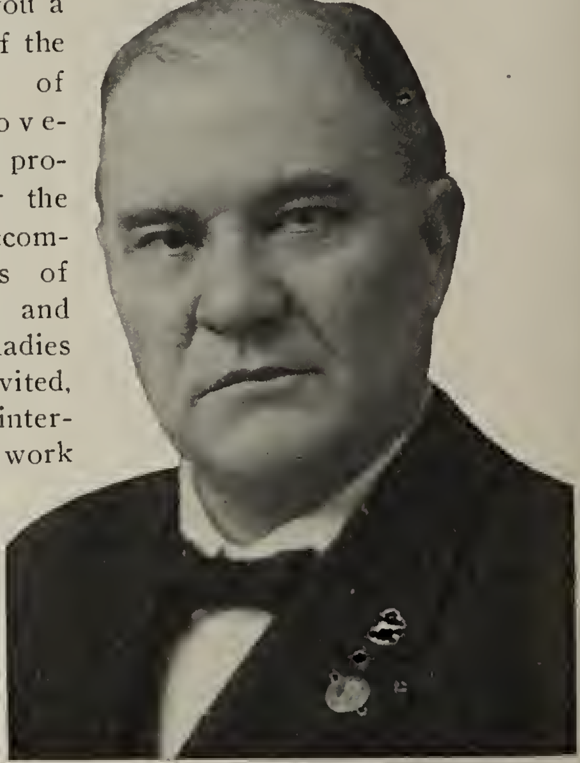
Thursday evening's session of the American Society will be one of great value to those who are interested in municipal improvements and will include the following papers:

"The Dayton Plan of Government," by Henry M. Waite, city manager, Dayton, Ohio; "Citizen Co-operation in Municipal Affairs," by Fred H. Rike, president of the Greater Dayton Association, Dayton, Ohio; "The Work of the Federated Improvement Association in Dayton," by William S. Crandall, Dayton, Ohio; "The City at Work," by Louis L. Tribus, consulting engineer, New York City; "Obligations of the State to the Municipality in Matters of Public Works," by Alexander Potter, consulting engineer, New York City.

HON. JAMES M. COX
Ex-Governor of Ohio

In a letter written to "Brick and Clay Record," Secretary Blair says: "Our program for the annual meeting, to be held at Dayton, Ohio, the 11th, 12th, 13th and 14th, has just come from the press, and a copy is enclosed. You will note that we have extracted certain special features of the proceedings of the American Society of Municipal Improvements which are of particular interest to paving-brick men. In our menu at the banquet we are going to have an expression something like this: 'Public Welfare is Best Served by Co-operative Effort,' and the reverse sentiment: 'Individualism Begets Selfishness.' We are trying to cultivate among ourselves and our guests, on this occasion, the ideal purpose for which each of our associations was organized, which is to render to its patrons—the public—value received for prices obtained.

"I am enclosing you a complete program of the American Society of Municipal Improvements, and also a program arranged for the ladies who will accompany the members of that organization and our own. The ladies are cordially invited, both as wives and interested parties in the work of the members of both associations. The entertainment of the ladies during the entire week will be the care and privilege of the Engineers' Club of Dayton,



WILLIAM OXLEY THOMPSON
President Ohio State University

that organization having insisted upon this opportunity of showing its appreciation of our choice of Dayton as the scene of the dual convention."

Comment upon the far-sightedness of the paving-brick men in selecting the same city and the same dates for their convention as those chosen by the American Society is unnecessary. The close communion of men who make the material with the men who specify and use it will be a mutual gain. The spirit of service that will mark all of the sessions cannot fail to result in a better administration of public money than has been known in past years.

The Cincinnati-Hamilton Pike. A Brick Paved Highway Over Which One of the Inspection Trips Planned for the Convention Will Be Made

Convention Dates in Prospect

Announcement is made of the date and place of holding the 1916 convention of the Canadian National Clay Products Association. At a meeting of the executive committee recently held in Toronto, it was decided to hold the convention on Tuesday, January 18, and the two days following. The place of meeting will be the King Edward Hotel, in Toronto. Every effort will be made to make this convention constructive. Our friends across the border have problems of distribution that must be solved—problems that are not made any lighter by the financial situation which has followed Canada's patriotic answer to the call of the Mother-country. On account of the large number of plants that are running part time, it is predicted that an unusually large number of superintendents and plant managers will be able to attend, and in this way, the results of experiments that have been made under plant conditions, and which ordinarily do not come to light, will be freely given for the benefit of the craft at large.

Clayworkers from "the States" are cordially invited. It may be remembered that the Canadian contingent at our N. B. M. A. conventions was always large and enthusiastic. We all recall the "kilties' band" that made itself felt and heard at Chicago. It seems like a good time to repay those visits.

No conventions, other than that of the National Paving Brick Manufacturers' Association, are scheduled for the present month, nor for November. In December, however, the American Face Brick Association will, in all probability, hold its annual meeting, although the date and the place have not, as yet, been selected. In January, the Canadian National Clay Products Association will meet in Toronto, and in February the Illinois Clay Products Association expects to hold its annual meeting at Peoria, Ill., the 8th, 9th and 10th. Following that comes the National Brick Manufacturers' Association convention, which will be held in Cleveland, Ohio, February 21 to 25, inclusive.

Secretaries of state associations are urged to write "Brick and Clay Record" before definitely deciding upon the dates of their meetings, so that they may not conflict with those held in nearby states. This magazine will answer, by wire, if requested, all inquiries as to conflicting dates already registered.

Announcement will be made, shortly, of the short courses in ceramics that will be held at Columbus and at Urbana. It is particularly desirable that conventions avoid these dates, since many of the men who otherwise would have attended both will have to forego one or the other.

K. Eleod is Alive and Well

Readers of "Brick and Clay Record" who recall the article "Wartime in Hungary," by K. Eleod, printed in the May 18, 1915, issue, will be interested to know that the author of that article, a Hungarian by birth, and at one time a student at the Ohio State University—afterward employed in two or more American potteries—has earned his spurs in the war that has engulfed his native land, and without personal injury.

His many friends in America will recall the pleasing personality of this young man, and it is with great pleasure that "Brick and Clay Record" announces the receipt of a letter, written in September, and advising us of a new address to which the magazine may be sent.

Florida Votes Large Sums for Brick Roads

Just how popular brick highways are becoming in Florida may be gained from recent or proposed elections on bonds in the various counties of that state.

Seminole county has voted an issue of $450,000 in bonds for brick roads; an issue of $1,000,000 has been acted upon, in Hillsborough County, for roads to be completed by January 1, 1916, and another election is to be held shortly in this county on a proposition to issue $500,000 more for the purpose of completing the system. Orange county has voted $600,000 to pave fifty miles of road with brick, the work to be completed not later than December 1 of the present year.

Duval county will hold an election shortly on a proposed issue of $1,300,000 worth of bonds for the purpose of completing a system of brick roads. An issue of $1,000,000 has already been voted for the construction of sixty miles of brick highways. St. Johns county is now working on a sixty-mile stretch of brick road to be completed by November 1, under a $650,000 bond issue. De Soto county has just awarded contracts for the construction of fifteen miles of brick highway under a $250,000 bond issue. The Palatka district of Putnam county recently voted to issue bonds to the amount of $208,000, part of the proceeds of which is to be used in the construction of brick roads. An election is soon to be held in Polk county on a bond issue of $2,000,000 for one hundred and ninety-four miles of brick roads.

Also, in addition to bonds issued and proposed by the counties, several of the cities of Florida have voted large sums toward the construction of dependable streets.

Clay Production Decreases in 1914

There were 2,209,860 short tons of clay mined and sold in the United States during 1914, with a value of $3,756,568, according to a report just made public by the Geological Survey. This is said to be a considerable reduction from the 1913 output, but compared with that of earlier years it shows the industry to be in fairly good condition. Only in 1912 and 1913 has the production of 1914 been exceeded. Fire clay was the principal clay mined in 1914, it being valued at $2,147,277, which was a decrease from

"Brickbuilder" Closes Another Competition

A competition for the best designed two-apartment house to be built of "Natco" hollow tile was recently completed by the "Brickbuilder" and the awards made. The prizes were furnished by the National Fire Proofing Company and were distributed as follows: first prize, Richard J. Shaw, Boston, Mass.; second prize, Harold Thorp Carswell, New York; third prize, J. Ivan Dise, New York, N. Y., and fourth prize, Maurice Feather, Watertown, Mass. In addition to the prize winners, a number of designs were chosen by the judges as being worthy of honorable mention.

The program of the competition was intended to bring forth solutions of the difficult problem of designing a two-apartment house. A large number of drawings were submitted, among which were many interesting and attractive designs.

Nailing a Superstition

It is told of Samuel L. Clemens (Mark Twain) that, when he was editor of a newspaper published in Missouri, he received a letter from a subscriber who, having found a spider in the paper that was mailed him, wrote saying that he was superstitious, and asking whether the coming of the spider was an indication of good or bad luck. The humorist answered as follows:

"Old Subscriber: Finding a spider in your paper was neither good luck nor bad luck for you. The spider was merely looking over our pages to see what merchants were not advertising, so that he could go to that man's store and spin his web across the door, with the assurance of being able to lead a life of undisturbed peace."

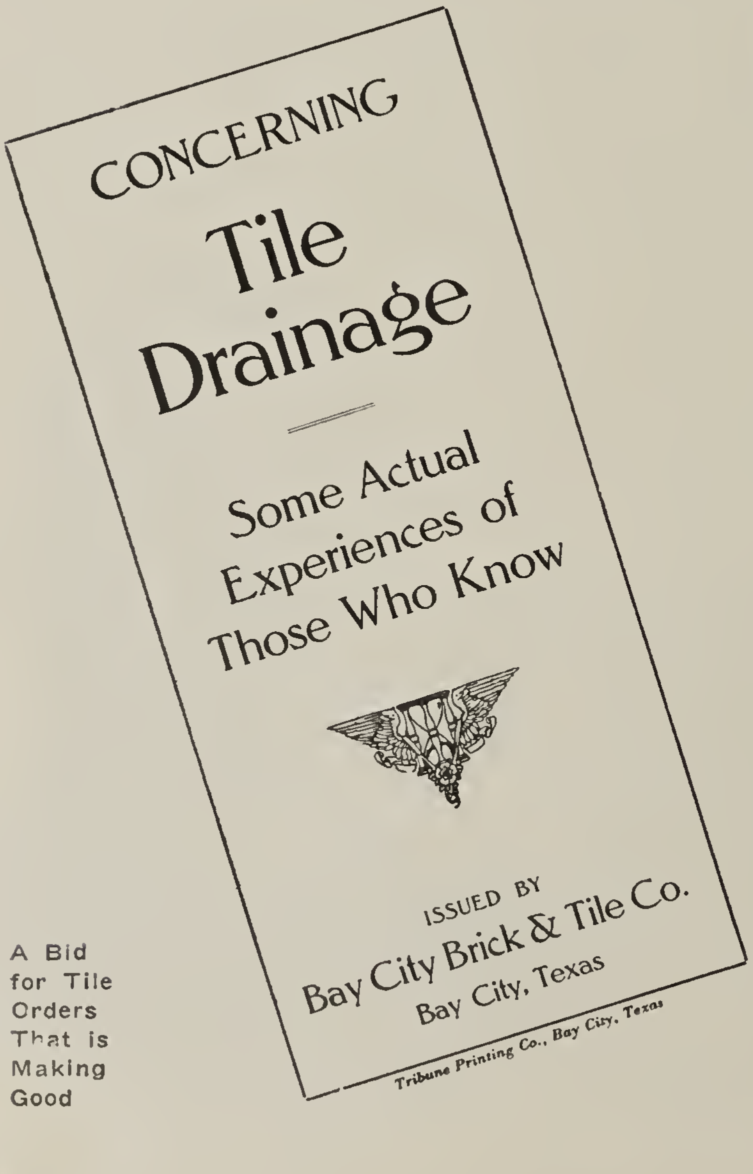
Leadless Glaze Used in Denmark

The following formula for a leadless glaze is recommended by a writer in "Pottery and Glass," who claims that it is being successfully used in Denmark.

Calcined soda, 100 parts; boracic acid, 90 parts; kaolin, 12½ parts; whiting, 40 parts; feldspar, 75 parts and quartz, 28 parts. This mixture constitutes the frit and must be mixed and burned together.

After fritting grind finely and use 48 parts of ground frit with 11 parts of kaolin and 5 parts of feldspar, and the glaze is ready for use.

An Inexpensive and Effective Drain Tile Booklet



CONCERNING
Tile Drainage
Some Actual Experiences of Those Who Know
ISSUED BY
Bay City Brick & Tile Co.
Bay City, Texas
Tribune Printing Co., Bay City, Texas

A Bid for Tile Orders That is Making Good

An excellent booklet, which we are informed is a good business getter, is issued by the Bay City Brick & Tile Company, of Bay City, Texas. It measures 3¼ by 5¾ inches and consists of ten pages and cover. Being printed on inexpensive paper and in one color ink, it represents a comparatively small investment.

No special cover stock was used, and no illustrations. The thought behind the booklet is information, and it is directed at the man who has time and inclination to read—not the man who has to be tempted by fine printing and pictures.

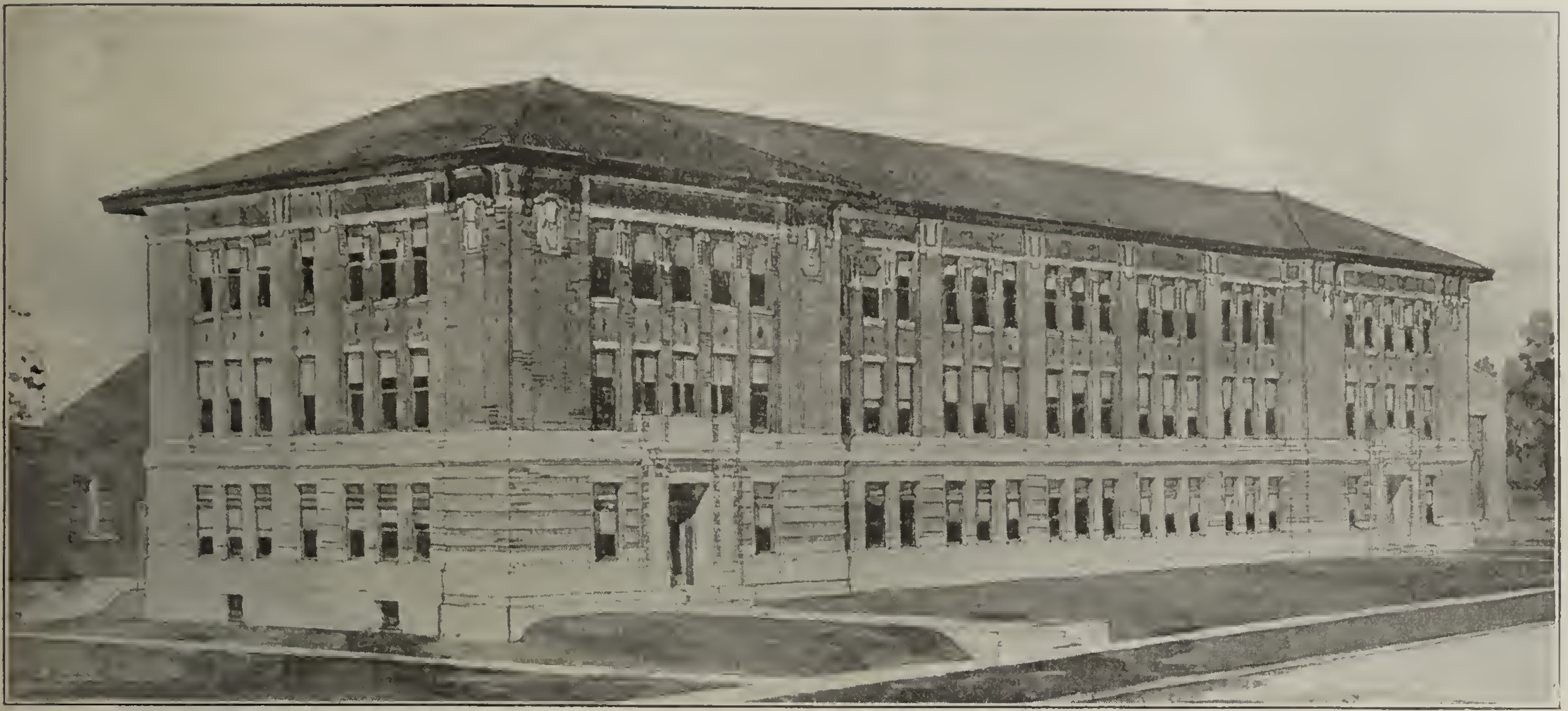
Beside this, it is of a size that can conveniently be mailed in the ordinary envelope, so obviating the necessity of buying special envelopes, which is, in itself, an expense—can also be used as a "stuffer" and sent out with bills and statements.

The text matter is well chosen. It begins with an article, "Why I Commenced Tiling," reprinted from an agricultural paper, and written from the farmer's standpoint. Beginning "I was born and largely raised on a hill farm with more or less wet spots over it," the reader's attention is at once arrested, if he, too, were born on a farm, even though it were not a "hill farm."

Immediately following that are letters from farmer customers—all of recent date, and some extracts from local newspapers, relating to the activity of the company that issues the booklet.

Altogether, it is a creditable piece of advertising literature and a splendid indication of the progressiveness of the Bay City Brick and Tile Company's management.

"Brick and Clay Record" will be glad to receive similar specimens of trade literature, or of even simpler forms of using printers' ink to make new markets for burned clay. It would also be glad to receive marked copies of local papers containing advertisements of clayworking plants.



The New Ceramics Building at the University of Illinois as it Will Appear when Completed

A Milestone in the Progress of Ceramic Industry

Illinois University Makes Running Start on $150,000 Building for the Training of Ceramic Engineers

WHEN PRESIDENT JAMES tapped the terra-cotta "cornerstone" of the new ceramics building at Illinois University, and declared it "well and truly laid," another milestone was passed on the road to a better clayworking industry.

When, perhaps a year from now, the doors of this building are thrown open to a great class of young men who will, in time, apply scientific principles to the manufacture of clay products, and substitute accurate formula for rule-of-thumb and "feel", long steps will have been taken toward the happy day that is coming to the industry—when the profit will be larger and the waste less.

This building is to be three stories in height, and will occupy a ground area of 67 by 189 feet. It will be an imposing unit in the group of University buildings of which it is a part. So far as is possible, it will be built of burned clay products. The facing material is a very light grayish terra-cotta, speckled with a faint pink, this being a trimming for the face-brick, which is of the textured variety, deep red to purple in shading, and laid in the new "Tiffany" effect—the lighter shades being near the ground, and gradually growing darker, until, under the eaves, the very darkest of this kind of brick will be seen.

Of the interior appointments much can be said, and will be, later. Arrangements have been made for large panels of brick, laid after designs arranged by the architectural department of the University, and as an integral part of the building. These panels will be in the corridors, and will be a part of the scheme of interior decoration. Each panel will be of a different brick—one each from the various brickmaking factories in the state of Illinois.

This building is designed to accommodate that portion of the instructional and research work of the University which deals with the fabrication of clay products, cement and glass. The importance of activities in this field is increased by the fact that the raw materials involved, while of but little value in themselves, are through the expenditure of labor and the use of fuel, converted into products both of utility and beauty. Moreover, the clays and rocks constitute so extensive a resource that their utilization occasions no appreciable loss in the natural resources of the state.

Clays, limestone, sandstone and sands together with small amounts of other minerals may be made to yield many different products ranking in character from the common-brick to the more ornate terra-cottas and the most exquisite porcelains.

They are also the sources of glass in its hundreds of forms, from the simple window-pane to the brilliant ornamental glassware and the delicately polished lens of the telescope. From the standpoint of chemical technology all of these materials belong to one great family of compounds known as silicates. Their economic importance to the industries of the state and the nation, the complex character of the problems which are introduced by attempts to utilize them, and the imperfect knowledge possessed of the means which may be employed in solving these problems have been deemed by the Illinois Legislature as sufficient to justify the expenditure of the funds re-

Laying the Cornerstone of the New Ceramics Building

quired for the erection of this building, in which the youth of Illinois may be trained scientifically in the utilization of one of our greatest resources.

The laying of the "cornerstone," which took place September 27, was attended by a notable group of ceramists, among whom were Edward Orton, Jr., Dean of the College of Engineering, Ohio State University; W. D. Gates, president of the Gates Pottery Company; Ray T. Stull, late director of the Ceramic Department of the Illinois University, and now Ceramic Expert for the Dunn Wire-Cut-Lug Brick Company; A. V. Bleininger, of the United States Bureau of Standards and Acting Director of Ceramics at Illinois University; Arthur E. Williams, Ralph Kent Hursh, Barney S. Radcliffe and Charles Russ Richards, Dean of the College of Engineering at Illinois University.

During the preliminary ceremonies, the Hon. Richard J. Barr, Illinois State Senator, and representing the 41st senatorial district of Illinois—a graduate of the University and one of its strong legislative supporters—made an interesting address, as did Professor Orton, William D. Gates and President James.

The illustration which appears on the preceding page is made from the architect's perspective. The chances are that the building will look very much better than the picture.

The Rectilinear System of Laying a Brick Walk

IN PLANNING A BRICK SIDEWALK, or, more properly speaking, a brick walk, a great deal may be accomplished in the way of a bond. In point of fact, the brick walk lends itself to patternwork more readily than ordinary brick-work, since there are no piers to be figured and no openings to interrupt the pattern.

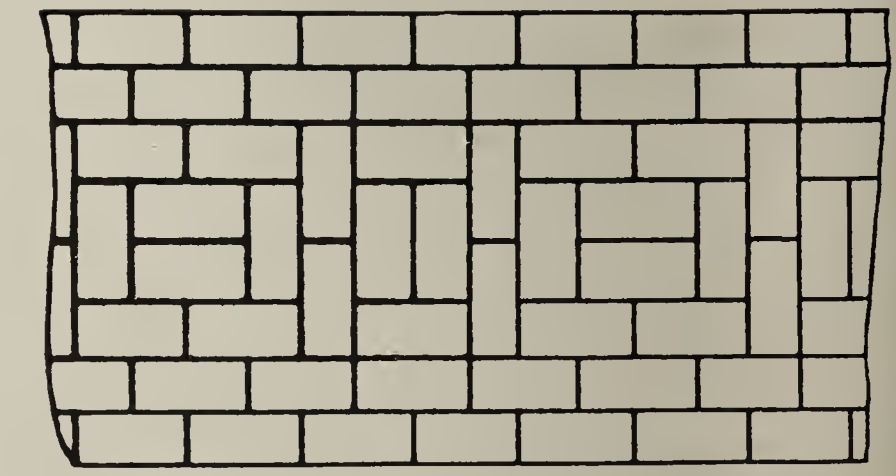
A noted landscape architect advocates what he calls the "rectilinear system," a "system" which appears to be formal at first sight, but when multiplied loses much of this feeling. Incidentally, it agrees with the present architectural mode, which places a rectilinear structure on an quadrangular lot.

There is a great deal of reason, therefore, in the objection to curved lines in the plotting, since there is a total lack of harmony between the curves and the straight lines of the house—not to mention the boundaries of the garden. The rectilinear plan lends itself to a better spacing of the beds and the contrast between simple direct lines of the walk and border on one hand and the natural informality of vegetation on the other is a source of charm in itself.

W. S. Rogers, who advocates the "rectilinear system," shows that the cost of a brick walk compares favorably with that of a gravel walk, tile edged. He suggests the use of brick on edge or one end for a raised curbing to the main walk. A sand joint he considers satisfactory in many situations, but a cement joint better, as it precludes seepage of moisture from below and prevents the growth of weeds in the crevices.

Wide use of vitrified brick, not merely underfoot, but in such vertical structures as walls, terraces, posts, foundations, and in the house itself, is one of the triumphs of architectural originality in the present day. Strength, symmetry and beauty of texture are combined in a striking degree in this material, which seems capable of endless adaptations. In contrast with other materials used for walks and drives, its first and most striking attribute is cleanliness. There is no loose material to be picked up on muddy feet and carried into the house. A stream of water from a garden hose will always leave it as bright and fresh as the day it was laid.

One of the prime considerations in laying a path is to have it go somewhere. It naturally leads from the residence and just as naturally it should terminate in a summerhouse, a seat, a pergola, or even a toolhouse. A second cardinal point in path location is the proper distribution of space for planting on either side of the walk.



The Rectilinear System of Laying a Brick Walk

The side toward the sun should be reserved for a narrower flower border, of even height, beyond which a grass plot or lawn may be most effectively located. Individual taste will dictate different relationships of plant, shrub and grass, but the scheme does not begin to emerge from a state of chaos until it has a pathway, clean cut, harmonious and direct, to set off the avenue of bloom and to give accessibility to each of its many petaled attractions.

Setting Down Draft Kilns

Being the Second of a Series of Articles on the Manufacture of Building Materials in Burned Clay

By A. F. Greaves-Walker

(Asst. Genl. Mgr. Sun Brick Co., Ltd., Toronto, Ont., Member American Ceramic Society, Member English Ceramic Society, Member Royal Society of Arts, Fellow Utah Academy of Sciences)

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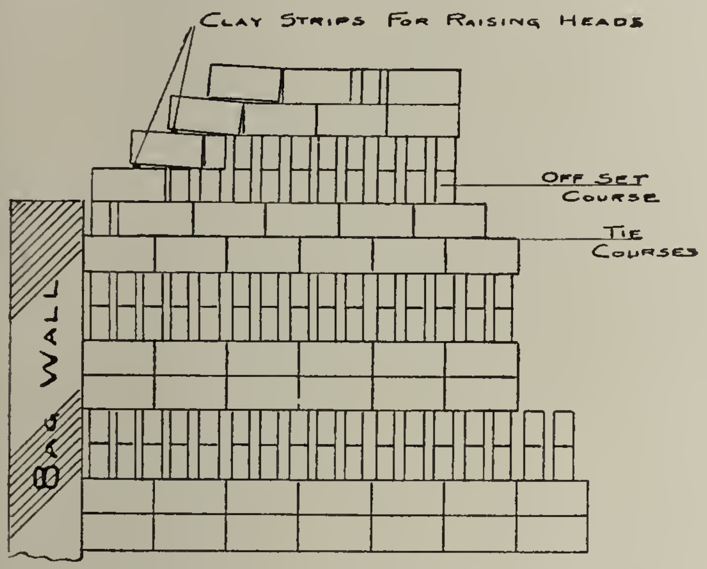
SETTING THE KILN, or, to more properly speak, setting the ware in the kiln, has been a subject for study and experiment ever since the first kiln was built—or rather, ever since the first kiln was set. It has grown in importance as kiln structures developed, and, within the past decade has become a matter of vital importance.

This is due, in great measure, to the introduction of texture face-brick, for, fast following the early popularity of this material, hundreds of plants which had never before attempted the manufacture of anything but commons, became—at least partially—face-brick producers.

In the production of common-brick, the manner of setting was of little moment, so long as it insured a firm mass, frequent draft-passages and kiln capacity. But in order to secure good, merchantable face-brick, these manufacturers found it necessary to make radical changes in their setting methods—finding, indeed, that setting the kiln was fully as important as any of the preliminary processes of manufacture, and as the actual burning.



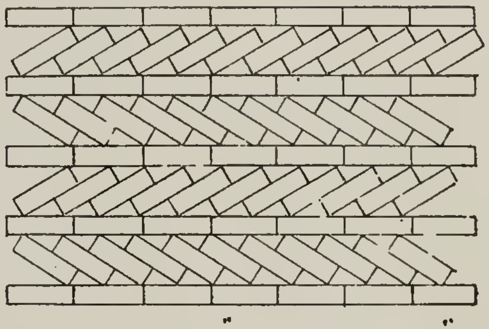
Showing Method of Raising Heads

Plate 1

Nor is the interest confined to those brickmakers who have turned a part of their output from common- to face-brick, for many plants, hitherto exclusively devoted to the manufacture of smooth faced face-brick, have found that the introduction of the new matt surfaced product had a way of reversing old rules, and so these brickmakers were called upon to invent or adopt new ones.

The above, of course, refers entirely to the effect of the setting upon the appearance of the finished product. Another important item must be considered—the relation between the setting and the efficient operation of the kiln.

Kiln designers, some time ago, found that they could not successfully use the rules laid down for ordinary metallurgical furnace construction, because in considering firebox area, flue area and stack area and height, they must always figure on the dense checker work through which the gases have to travel, downward, aided only by natural draft. Of necessity they worked out rules and ratios of their own, and in these rules and ratios the setting was taken fully into consideration. In a well designed, up-to-the-minute-kiln, therefore, the method or density of the setting makes very little difference, but there are thousand of kilns where it makes all the difference between success and failure.



Plan of "Herring Bone" Skintle Course

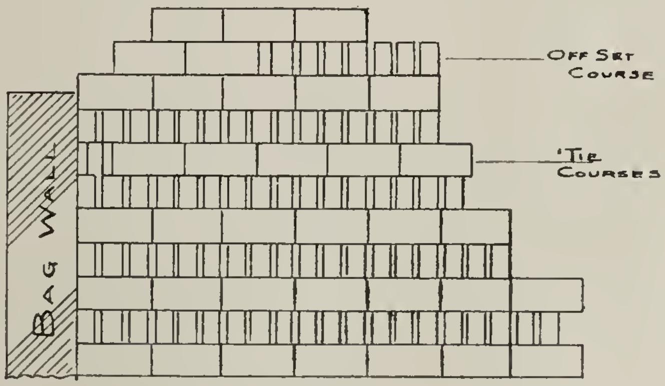
All Brick Set on Edge

Plate 2

EFFECT OF SETTING ON BURNING

In the first place the setting will be considered only from the standpoint of its effect on the operation of the kiln.

As a general rule, the setting of the ware has a greater effect in a round kiln than in a rectangular one. This is due to the fact that in the majority of round kilns the fire gases are compelled to travel about twice the distance from the fire-boxes to the center, as in a rectangular kiln. There is, then, far more opportunity for the gases to "short cut" into the flues and leave a cone of soft brick in the center, and this is exactly what happens in very many cases. The remedy is very simple—the benches should be tightened (brick set closer together) near the bag-walls and gradually loosened as the middle of the kiln is approached.

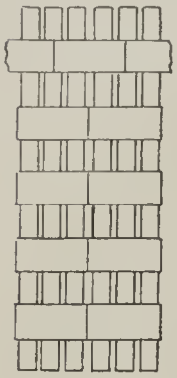


Front Elevation

Single Header ⅙ Stretcher

Plate 3

When this trouble occurs in a rectangular kiln the same remedy will overcome it. The effect of this is to baffle the gases near the fire-box and drive them toward the center—they naturally following the path of least resistance. "Cool" or "hot" spots are sometimes found to recur in certain places in a kiln. When such spots are located, they can practically always be eliminated through changes in the setting. In the case of a "cool" spot, the setting should be "opened up" in order that more of the fire gases may be drawn to that particular point. A "hot" spot is treated in the opposite manner—the brick are set tighter at this point in order that less of the fire gases may pass through it.



Section Thru Bench

Plate 4

The tightness or looseness of the setting—(these terms are used to designate the distance the brick are set from each other), has a very great effect on the burning qualities of many kilns. By setting too tight, in an effort to crowd a large number of brick into a kiln, the burning period is lengthened out of all proportion to the gain in holding capacity. The draft is cut to such an extent that "water settles" and "black cores" develop; the fuel consumption is unreasonably high, due to the length of the burn; overburned brick on the top, and underburned brick in the bottom are the rule. On the other hand, where the setting is too open, space is lost that is valuable, and considerable of the heat value of the fuel is wasted through escaping too readily to the stack.

These things must be taken into serious consideration by the clayworker who would bring his plant to the highest point of efficiency.

EFFECT OF SETTING ON PRODUCTS

The setting of brick in the kiln is an all important factor in the quality of the finished product. It determines whether, under certain burning conditions, the face of the product will be of a clear color or flashed, and whether the flash covers part or all of the face. It also determines to a great extent how much of the ware will be marked in the burning. Just what methods are used to obtain the various results will be taken up in detail later.

SKILLED LABOR

There is probably no other department in a brick plant where as highly skilled labor is required as in the setting department. Setters must handle the brick rapidly and carefully, at a stage when these brick are more susceptible to damage than at any other. A great deal of a burners' trouble in having kilns "roll" or heads pulled into the fires, is properly chargeable to faults in the setting. Very often the blame is never placed where it belongs and the burner struggles along under a handicap he is unable to overcome.

A skilled setter should constantly keep in touch with his kilns by noting results as they are emptied. In this way he can often suggest improvements and can most certainly correct his own faults.

HEIGHT OF SETTING

Under varying conditions brick are set from twenty-two to thirty-six courses high. There are several determining factors which govern the height to which brick may be set. Principal among these are, the burning qualities of the kiln; the ability of the material to sustain loads while under high heats and the liability of water settles during the watersmoking period.

In almost all cases the kiln determines the height of the setting. A clayworker soon finds that at a certain height he can get saleable ware in the bottom, and in a reasonable burning period. Experience also teaches him that to go beyond a certain point means overburned tops in spite of every precaution.

In any case, sufficient space should always be left between the top of the setting and the crown. Considerable combustion takes place in this space, due to unburned coal gases passing into the kiln and there mixing with free air. When combustion space is not allowed for, these gases will pass through the brick in an unmixed state, resulting in considerable fuel loss and a longer burning period and also flashed or reduced ware when it may not be desired.

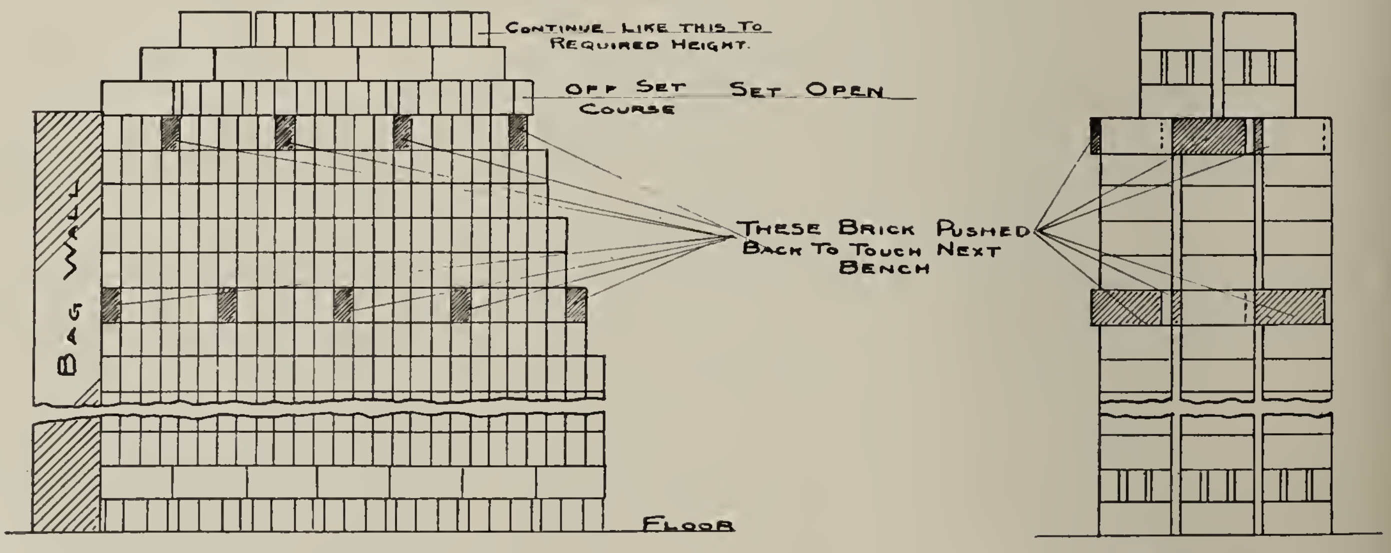
In some lines of manufacture, principally fire-clay shapes and paving block, the maximum height is determined by the material. At high temperatures many materials will deform when too heavily loaded. This results in the lower courses being "kiln marked" or crushed.

Kilns with poor draft are sometimes troubled with water settles in the watersmoking period. These are caused by the ware in the lower courses becoming so soft, through the reabsorption of moisture from the gases, as to crush under their load. About the only remedy, unless changes are made in the kiln itself or the method of burning, is to reduce the setting height.

As a general rule the setting is "battered back" at the tops of the bag- or flash-walls, although in some cases a little below. It is seldom good practice to run above the bags before battering, on account of the tendency of the fires to "pull" the brick into them. Where the brick are set unusually high, the upper part of the bag-wall is often built of checkerwork, sometimes laid up loose. The reason for this is that it is difficult to get even bottoms in some kilns if the bag-walls are too high. In such cases the checkerwork at the top acts merely as a brace for the setting, while not interfering with the burning.

PREVENTING SAGGING OF HEADS

What is popularly known as the "pull of the fires" on the setting is in reality not "pull" at all. It is due to the difference in the progression of the shrinkage between


Continue Like This To Required Height.
Off Set Course
Set Open
These Brick Pushed Back To Touch Next Bench
Bag Wall
Floor

Front Elevation

Tight Bolt Setting

Section Thru Bench

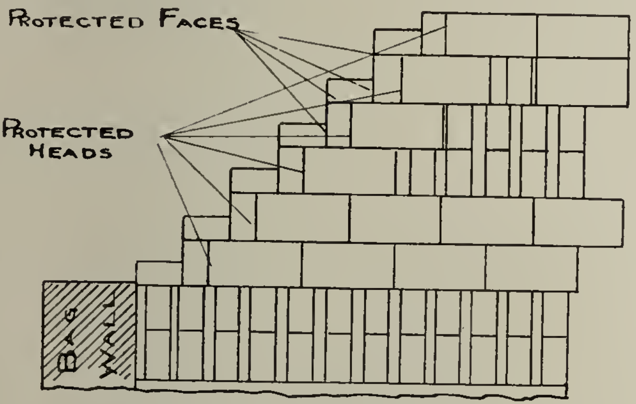
Plate 5

Plate 6

those brick close to the fires and those farther away. There is a difference in the progression, even in the length of a single brick, as the head of the brick towards the fire will start shrinking before the head that is away from the fire. This difference multiplied by the ten or fifteen brick of the top courses, gives a decided lean towards the fire, and under certain conditions means a fire-box full of brick. This "tumbling" is often brought on by too rapid firing, the brick nearest the fires naturally catching the heat first and shrinking heavily before those in the body of the kiln.

When this trouble occurs only occasionally and at isolated furnaces, the commonest method of preventing a "tumble" is to temporarily stop firing the threatened furnace. If necessary, the fires should be drawn and cold air allowed to pass through the furnace into the kiln. This method is very effective.

In cases where it seems practically impossible to prevent "tumbling" by any ordinary "tying in" of the heads, the following methods must be resorted to: Where round kilns are used, a ring three or four stretchers wide is set entirely around the kiln, close up to the bags. This ring is generally started at one side of the setting door and continued around the kiln to the other side of the door.

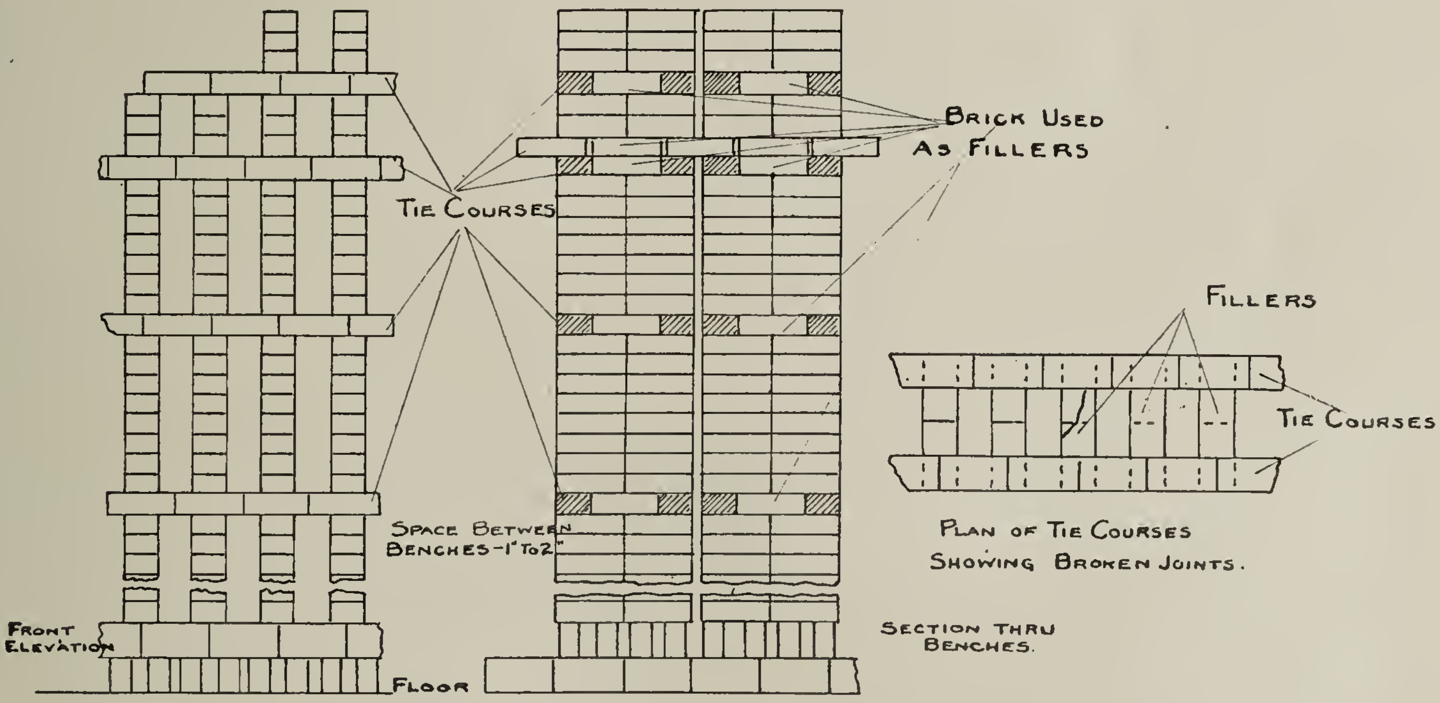


Method of Protecting Heads From Flash

Plate 10

The floor runners or brick on the floor are set so as to radiate from the center of kiln. All of the headers also radiate in the same way, while the stretchers run in circles. The entire ring is set as one bench and is securely tied together by the stretchers. When the top of the bag-wall is reached the batter is only carried up two or three courses and headers used there entirely. With extremely troublesome materials, two rings, one inside the other, are sometimes used. The inside ring is always carried up higher than the outside. Inside the ring or rings, the regular bench setting is used.

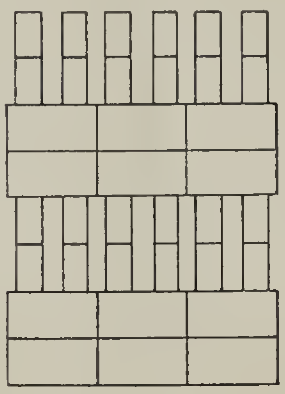
The author has never known of a case where this ring setting, if properly done, has not eliminated "tumbling." It is, of course, more expensive to set the ring than the bench on account of the extra time consumed.



Plan of Tie Courses Showing Broken Joints.

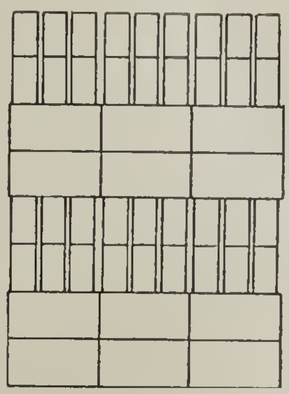
Method of Setting Whole Kilns on Flat.

Plate 11



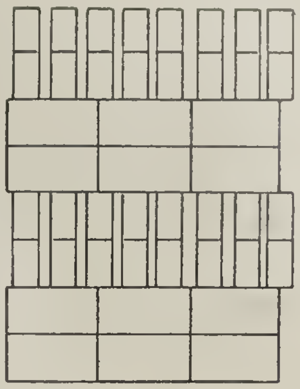
Double 2 on 1

Plate 7



Double 3 on 1

Plate 8



Double 5 on 2

Plate 9

In rectangular kilns, where the ring method is impossible, the benches are carried up as usual to the point where the trouble is encountered. Strips of clay, generally made from waste ends from the cutter, are placed under the ends of the stretchers nearest the fire, giving them a slope towards the center of the kiln. This is shown in Plate 1. In most cases, this need only be done on one or two courses to make it effective.

LAYING OUT BOTTOM RUNNERS

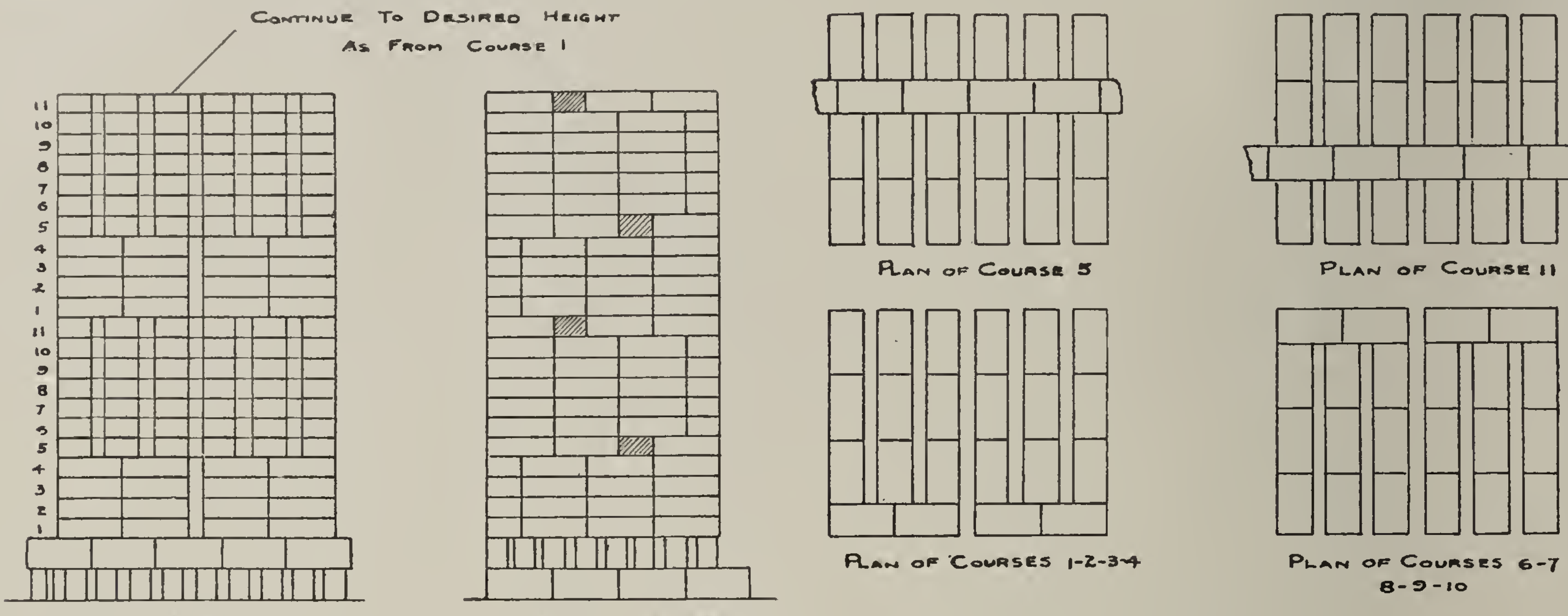
The floor runner brick should always be set to conform to the type of bottom. In solid bottom, center well, round kilns they should be set radially, for if set across the kiln, with openings between for draft passage, the draft will short cut to the center, taking the path of least resistance.

In checker or riddle bottom kilns, the runners should be set so as not to interfere with the floor openings. Many kilns work badly for no other reason than that no attention is paid by the setters to the openings in the floor. Very often the erratic action of a kiln is due to this one thing. Setters should always be impressed with this fact and compelled to avoid setting brick over the openings.

Kilns are often so located that the top portion of the kiln must be wheeled out first, leaving the "bottom" until last. This "bottom" may consist of a varying number of courses. In order that these bottom courses may be wheeled over, without danger of their "rolling" under the running planks, it is necessary that a course of brick be set in such a manner as to make a firm false floor or wheeling course. A very good method of setting this "floor" is illustrated on Plate 2. This is known as the "herring bone skintle." One course only is set in this manner, the courses below and above it being set in the regular way.

METHODS OF SETTING

For the purposes of describing them, the various methods of setting may be divided as follows: Common-brick setting; unflashed face-brick setting; flashed face-brick setting and enameled-brick setting.



Front Elevation

Section of Bench

Plan of Course 5

Plan of Course 11

Plan of Courses 1-2-3-4

Plan of Courses 6-7 8-9-10

Method of Setting Whole Kilns on Flat

Plate 12

The low price at which common-brick is sold demands that they be produced as cheaply as is possible and, as the color is not of primary importance it makes very little difference whether the face is flashed or unflashed. The alternate single header and single stretcher fills all requirements (Plates 3 and 4). It is quick and can be done by setters with but little skill and, above all, it is a very stable method. The question as to whether the brick should be set "two on one," "three on one" or "five on one" is simply one of kiln draft and must be determined for each individual case. This is also true with regard to the number of offsets or tie-courses and to the tieing in of the heads.

The simplest and quickest method of setting common-brick is known as the "tight bolt" method. It is little known in the United States, but is widely used in England and in Canada, in both up- and down-draft kilns. As will be seen, in Plates 5 and 6, the brick are set in absolutely tight benches, *all headers,* running from bag-wall to bag-wall. These benches are set approximately one inch apart to allow for draft space and are kept from "rolling" by pushing through an occasional brick in every fourth or fifth course, so that it just touches the bench behind.

The proper spacing of the draft spaces is made by a "follow-board," which is pulled up as the bench rises. This is merely an inch plank, with two leather handles, and it is supported by headers that are occasionally pushed through, as necessary. In rectangular kilns one "follow board" will answer the purpose, but in round kilns several are required to accommodate the benches of different lengths.

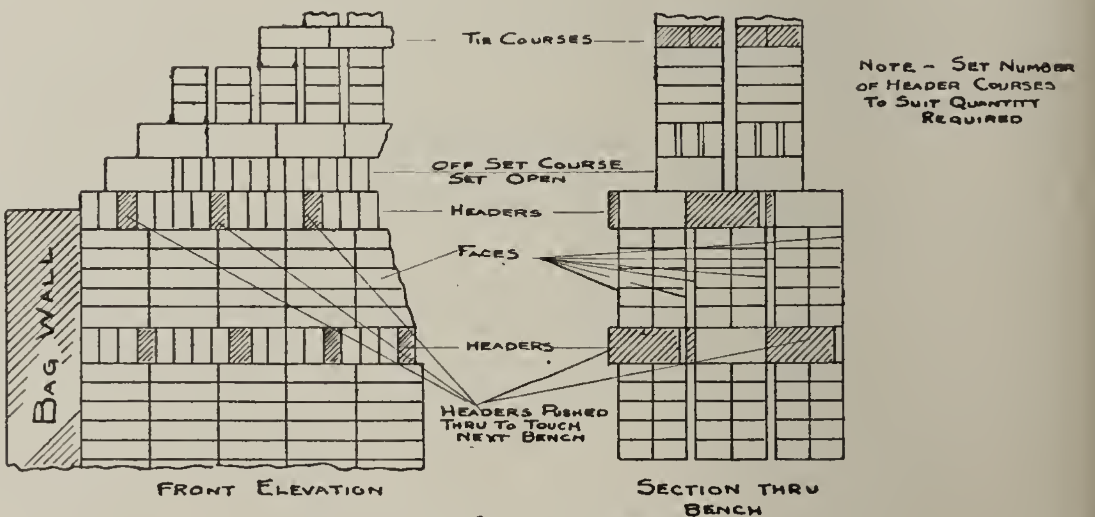
At first sight this method of setting appears to be impossible. It gives the impression of cutting off all draft and of being too tight. However this is not the case. It is an old method and perfectly successful in every respect. Less skill is required in setting "tight bolts" than in any other method. It is extremely fast, as a setter can pick up as many brick as he can clamp together between his hands and lay them in place on the bench in one movement. There is absolutely no chance for "kiln marking" and the brick come out of the kiln with both faces of an even color.

UNFLASHED FACE BRICK SETTING

In spite of the increased demand for flashed colors there is still a good demand in some sections for brick of a clear color, both in dry-pressed, stiff-mud and soft-mud. To prevent flashing, it is of course necessary to protect the faces and heads. This is accomplished by "facing" the brick and "butting" the heads.

The well known forms of "double two on one," "double three on one," and "double five on two" are used, as shown in Plates 7, 8, 9. With care in burning, this type of setting will accomplish the object sought for. It requires, however, the greatest skill, for all brick must be perfectly faced or many "seconds" will result. Care is also necessary, as with all setting, that after the first course is laid down all brick shall be set in perpendicular lines, in order that the fire gases may flow unchecked to the bottom.

Where burning can be done under continuous oxidizing conditions, as in cases where natural gas, producer gas or oil are used, the "tight bolt" method can be used with success. With this method only the heads are exposed to the gases under any circumstances, and if these are not flashed, there is the great additional advantage of having two faces to select from, with no chance of "kiln marks."


Tie Courses
Off Set Course Set Open
Headers
Faces
Headers
Headers Pushed Thru To Touch Next Bench
Bag Wall
Note – Set Number of Header Courses To Suit Quantity Required

Front Elevation

Section Thru Bench

"Tight Bolt" Flat Setting

Plate 13

Protecting the heads exposed above the flash walls is one of the difficulties experienced in setting unflashed face-brick. One of the several methods used is shown on Plate 10.

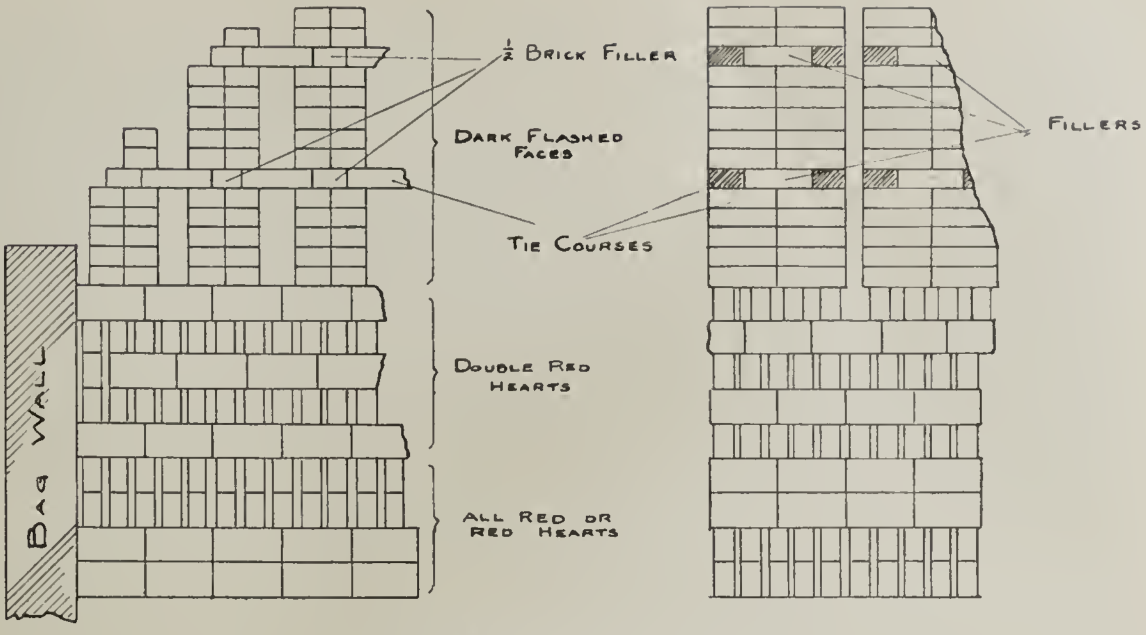
FLASHED FACE BRICK SETTING

Setting brick so as to get flashed faces presents many difficulties. In the first place, if entire kilns of flashed faces are required, the difficulty is often experienced of dealing with raw materials which will crack badly when set flat to any height. "Rolling" or "tumbling" often results with this method. The setting space is reduced and there is a greater tendency for brick to stick at vitrification temperatures, unless sand is used.

Fortunately the market for flashed brick has been educated to demand a wide variety of flash marks. This allows the manufacturer to set part of his kiln on edge and part on the flat. In fact, the more varied the setting the greater the variety of marketing and color.

Plates 11 and 12 show two methods of setting entire kilns of brick in their beds or flat sides. The question as to how many brick can be set on each other before the coursing is broken by a "runner" or tieing course, and also to what height the setting can be carried, is one that must be determined for each material. No set rules can be laid down for this.

Another method, which was developed by the author and is an adaptation from the "tight bolt" method, is shown on Plate 13. This has proved very successful, and is very stable, although it gives only one flashed face. This, of course, is enough in a rough textured brick, but makes it undesirable for smooth face. It will be noted that the flashed heads are taken care of in the header courses. In the manufacture of rough textured brick, it is generally the rule to set combination kilns, part on edge and part flat. The kiln is divided so as to provide the proper proportion of each or only so many are set on the flat as the material will allow. Plate 14 shows a kiln set in combination.



Combination Flat and Edge Setting

Plate 14

Useful Information Regarding Wire Rope Hoists

If a hoisting rope has a proper factor of safety some of the wires may be broken here and there throughout its length without materially affecting its strength. But when several broken wires are observed close together, the rope should be discarded or, perhaps, used elsewhere for a time longer on lighter work, or where human life would not be endangered by breakage. Splicing should never be permitted on a rope by which men are raised and lowered.

Wire ropes will always stretch to some extent after being put into use and after running for a while. Engineers should always be instructed to start up as slowly as possible, as there is no question but that this strain on a rope, and subsequent vibration, is one of the most injurious factors a rope has to contend with.

Use of Fire-Brick in Argentina

The principal use of fire-brick in Buenos Aires, Argentina, is for settings for boilers, evaporators, dryers and all other classes of machinery in which there is a furnace. The largest use is for boiler settings. There are no blast furnaces in that country.

The ironworking industries in Argentina are very little developed, and promise very little for the future, as the raw materials—iron, coal and coke—all have to be imported. The item of freight on coal is ordinarily greater than the cost of the coal at the port of shipment. Two rolling mills at Buenos Aires are the largest users of fire-brick in the republic. Their products are principally ornamental iron work, light structural pillars and similar fabrications. Most of the railroads use fire-brick in their shops.

Fire-brick is received principally from England, Germany and Belgium, the United States being fourth on the list of exporters of this product according to the quantity shipped. In price, fire-brick ranges from $28.80 to $38.40, United States currency, per thousand, delivered at the port of entry. All sales of this material appear to be made on a delivered price, the shipper prepaying the freight. Ordinarily fire-brick is purchased by the consumer from local machinery supply houses, and practically the only cases in which it is shipped from abroad direct to the consumer are where it accompanies a purchase of machinery.

There are no government regulations as to the sizes and weights of packages of brick. They are generally shipped in export crates, which contain from 58 to 68 brick, a standard crate containing about 4.5 cubic feet. The weight of one thousand brick, crated, is approximately 7,700 pounds and will occupy about 85 cubic feet of space.

St. Louis Brickmakers Enjoy Outing

Members of the Brick Manufacturers' Association of St. Louis, Mo., enjoyed a day on the Mississippi River with their families September 25, being the guests of Edward C. Koenig and Andrew D. Franz. The trip included a journey on the Illinois River as far as Hardin, luncheon and dinner being served on the boat. Brick was a forbidden subject from the time the gangplank was drawn until it was cast upon the return at night. Among those who made the trip, with members of their families, were: Otto C. Oehler, president of the association, Enterprise Press Brick Company; Jacob Stocke, Jr., treasurer, Progress Pressed Brick and Machine Company; Anthony Ittner, Anthony Ittner Brick Company; Walter Pocock, secretary; Frank Ashmeyer, Hydraulic-Press Brick Company; D. A. Marks, Continental Brick Company; Walter Grath, Illinois Supply and Construction Company; E. J. Ryan, H. C. Koenig, Richard Schweer, Schweer Company; Jacob Maes, Herman Bromschwig, of College Hill; B. F. Ittner, of Belleville and W. H. Warmann.

Making Clean Brickwork

Being the Opinion of the Editor of the "Cement World" on a Subject of Considerable Importance to Builders

EDITOR'S NOTE: Despite the fact that some manufacturers and dealers in face-brick believe that "whitewash" is a necessary evil in brickwork, and that the less attention is called to it, the better for all concerned, there are many who have the opposite opinion. These men are concerned quite as much in the appearance of the finished wall as in the appearance of the individual brick. They want to know, sometimes, how the wall may be made clean, and made to stay clean. Here is some light on the subject.

REMOVING THE EFFLORESCENCE from finished brickwork and preventing its reappearance, is fast taking its place beside the much discussed subject of preventing efflorescence in the individual brick. Within the past three months several articles have appeared in "Brick and Clay Record," among which Arthur E. Williams' paper is, perhaps, the most valuable.

The subject is being taken up, however, by other journals, and in the September issue of the "Cement World" appears a letter which reads as follows:

> In one of the houses which I am now building, there is a brick mantel; and alkali comes out, leaving a white substance in the mortar joints. The brick are hardburned, buff or mottled color. The mortar used was made of lime and Portland cement and sand. The mortar was colored chocolate. The coloring was mineral black and mineral red mixed. Now what I should like to know is, how to clean the brickwork so that it will stay clean without any more of the white stuff coming out, and at the same time not injure the color of the brick.—T. M. Fredonia, Kan.

The editor of the "Cement World" answers: "The trouble which you are meeting is probably due to efflorescence, which may come either from the mortar or from the brick themselves. Efflorescence, often termed 'whitewash,' is a scum that sometimes appears on the surface of brick walls after they have been soaked with rain or in the presence of marked atmospheric humidity.

"This scum is due to the presence of soluble salts in the clay or mortar. In some cases, where the clay is the cause, these white patches appear on the brick when taken from the kiln. The presence of sulphuric acid salts on the brick in the drier had not been noticed; and if the brick are well burned, the scum is welded firmly to the clay, and no amount of washing with the strongest acids will remove it. The scum in this case is easily seen by the purchaser, and the brick need not be bought if discolored brick are objectionable.

"The brickmaker can remove the cause of trouble by mixing with the clay carbonate of barytes, which, in changing the soluble salts in the clay, such as sulphate of lime, forms insoluble sulphate of barytes and insoluble carbonate of lime. No soluble matter is left in the material, and consequently no scum will appear at any stage of the manufacturing process or when the brick are in service.

"The home builder, contractor, and architect are vitally interested in learning how to deal successfully with efflorescence which appears after the building is erected and which mars the beauty of the finished structure. If it is present in immediate and general distribution after rain or during very damp weather, the scumming is more likely to have come from the mortar than the clay. The water absorbed by the mortar, in evaporating, deposits the salts of soda, magnesia, potash, etc., which it has dissolved, and leaves an unsightly scum on the wall surface.

"The evaporation of water from the brick brings to the surface the soluble salts from the interior in the same way, but the action is not so rapid as in the case of mortar. In some cases, brick themselves free from these salts may show efflorescence by absorption of water impregnated with the salts in the mortar.

"Efflorescence may disappear gradually under the action of wind and rains. In the case of the Monadnock Building, Chicago, in 1902, the efflorescence was marked throughout the sill length of the 15th story. Each year the line of efflorescence dropped until at the time of writing, but few signs of 'whitewash' can be noted, and these on the lowest story.

"Waiting for efflorescence to disappear, however, is a lengthy operation. A quick way to remove it is by using hydrochloric acid mixed with five times its volume of water. The wall is first thoroughly dampened, then well scrubbed with the acid solution; after scrubbing, the wall should be washed perfectly clean with clear water.

"Further efflorescence may be stopped by using a waterproofing compound on the wall. In what is known as the Sylvester process, the effect being produced by alum and soap solutions. The alum solution is made in proportion of 1 lb. of alum to 1 gallon of water. The soap solution is composed of 2.2 lbs. of good soap dissolved in each gallon of water. The wall surface, at the time of application, must be dry, and not colder than 50 degrees F. The soap solution is applied at boiling temperature. This coat is allowed to dry for 24 hours, when the alum solution, at about 60 to 70 degrees F., is applied. This method of waterproofing has been in use many years and has proved quite effective. As it prevents moisture getting to the brick, it naturally prevents efflorescence also. It is recommended that aluminum sulphate be substituted for alum in the solution noted above, as being cheaper in first cost and in quantity required.

"There are also effective waterproofing compounds sold on the market under various proprietary trade names. These should always be used in strict accordance with the directions prescribed by the manufacturers."

It will be noted that our contemporary agrees with us, in the fact that "the home builder, contractor and architect are vitally interested in learning how to deal successfully with efflorescence which appears after the building is erected and which mars the beauty of the finished structure." The wonder of it is that the brickmaker has ignored the problem for so many years, and left it, almost entirely, to the "home builder, contractor and architect." It would seem that his interests dictate otherwise.

The Galesburg (Ill.) Country Club, Where the Institute of Paving Brick Manufacturers Refreshed the Inner Man

"Yours Truly, Purington" Hospitality Marks Paving Brick Institute

Second Session of Institute of Paving Brick Manufacturers Makes Study of Galesburg Plant

By Dwight E. Humphrey

General Superintendent, Deckman-Duty Brick Company.

THERE WAS NO QUESTION about it at all in the minds of those who attended the second meeting of the Institute of Paving Brick Manufacturers. It was held at Galesburg, Ill., Sept. 22, and it was a success. The weather, the meeting, the visit to the factories and the Purington line of entertainment could not have been surpassed.

Some of the members arrived the day before the meeting was scheduled. They were lucky, for Matteson, Orr and Terwilliger started right in with the "Yours Truly, Purington" hospitality, the which cannot be appreciated unless you have had a taste of it.

We were given a moonlight joy-ride to Mr. Terwilliger's beautiful summer cottage, out by the Country Club, not far from Galesburg. Of course the longest way around is the safest way home, so, after filling up his radiator, George Orr led the way back to the hotel by way of the town of Knoxville.

The next morning we visited the factories of The Purington Company—one of the largest in the country. The way the paving-brick shot out of those end-cut machines amazed many of us. They came so fast one could scarcely count them.

Out in the shale bank, a gasoline well drill is used to drill the holes for blasting down the shale. One shovel handles the shale for the three factories which the company operates. The shale is dumped from the pit cars into gravity feeders so constructed that one man controls the feeding of two dry pans.

A locomotive crane and a clamshell bucket is used to unload the 600 tons of coal a day which the Purington Company burns.

With a capacity of 300,000 paving-brick a day the dryers and kiln yards are essentially very large. It seems as if it was a full day's job to make the round of the shale pit and factories.

We were all hungry and tired of sight-seeing when, about 1 o'clock, dinner at the Country Club was announced. We lost no time in scrambling into the machines for the ride to the club.

The Country Club is located on the largest artificial lake in Illinois. The surroundings are delightful and they have a nice golf course. I think some of the members might have "teed off" if they had been "teaed up" a little. As it happened this section of the country is dry and no one was disposed to display his ignorance or ability in playing the game.

After doing justice to a sumptuous meal we sat around in the sun and talked about the paving-brick business and the war—you all know what war is. In some respects the paving-brick business and war are somewhat similar. Hill and Duty tried to "foot up" the situation in a novel way. Late in the afternoon we went to the hotel where we sat around and talked some more about war or the paving-brick business.

At seven p. m. we were taken to a special dining-room in the Elks' Club, where we tried to eat another big dinner. After doing fairly well with a second meal, cigars were passed around and the meeting was called to order. Some thirty or thirty-five members and associates answered the roll-call.

Professor Parr from the Illinois State University, who has long been known as an authority on the testing and purchase of coal, talked to us on these subjects. We were

A Novel Way of "Footing Up" the Expense

all so interested in what Professor Parr had to say and we had so many questions to ask that we did not get to our second subject—electric drives—until Eben Rogers, who was to lead the discussion, had to leave to catch the Alton train. Several of the other members, who have had considerable experience with electrically driven plants, volunteered some information and the discussion, which was finally started by Mr. Wallis, became very interesting. One man seemed to favor a steam and rope-drive transmission, another motor-drive with purchased current, another motor-drive and generate your own current. The discussion on electricity was still lively when we had to adjourn in order to catch the Chicago train.

It was decided to continue the subject of Electrically Driven Paving Brick Plants at our next meeting, which is to be held December 8, 1915. Detroit was suggested as a convenient location for this meeting. The definite selection, however, was left to the Committee on Program.

Teaching Fire Safe Construction to Thousands of Builders

EVERY WEEK DAY, from now on until the close of the Panama-Pacific International Exposition, between six and seven hundred men and women will pass through the modern, model, fire-safe residence that was erected at the intersection of the Avenues of States and Nations, by a handful of brick manufacturers and dealers.

Every weekday, from now on until the close of the exposition, "Dick" Kimbell, of Chicago and points West, will drill the story of fire-safe construction—particularly brick construction—into the ears of that multitude. The building is open seven hours a day, and this means that nearly one hundred prospective builders (not counting children) come within the sound of "Dick's" voice, and within the spell of "Dick's" logic, every hour. This means about four thousand a week.

Surrounding him is a "bevy of beauteous womanhood," as the dramatic writers would say—these being the working force of the lady who furnished the house, and who uses part of it as a salesroom for a wonderful line of knocked-down-and-put-together furniture. It is said that these girls have caught the spirit of "Dick's" lecture, and are taking a hand and lending a voice whenever it is needed to convince a visitor that building fire-safe is building right and that the best way to build fire-safe is to use brick.

Meanwhile, booklets that have been sent out by various manufacturers of brick and hollow-tile are being distributed. Those that are educational are being taken home—the others are being picked up, later, by the Japs that attend to cleaning up the house and grounds after the crowd has gone.

Everyone that stops to question wants to know if it really is a fact that brick is more economical than frame—and nearly everyone believes "Dick" when he answers in the affirmative. If there is a great increase in the number of brick residences built throughout the country in the next two or three years—blame "Dick" Kimbell and the men who sent him to San Francisco.

E. C. KIMBELL
Familiary Known as "Dick" and Who is Talking Fire Safe Construction to More Than Six Hundred Prospective Builders a Day at the Panama-Pacific International Exposition

Not that every man or woman that "Dick" talks to is going to build right away—some of them never will; but they have had a good drilling in comparative costs, and are in the way of believing that they couldn't afford to build in wood, if they did build. And this is a story that they are going to tell to their neighbors, when they tell of the other wonders of the exposition. So, when those neighbors build, they too will have had a little of "Dick's" big talk.

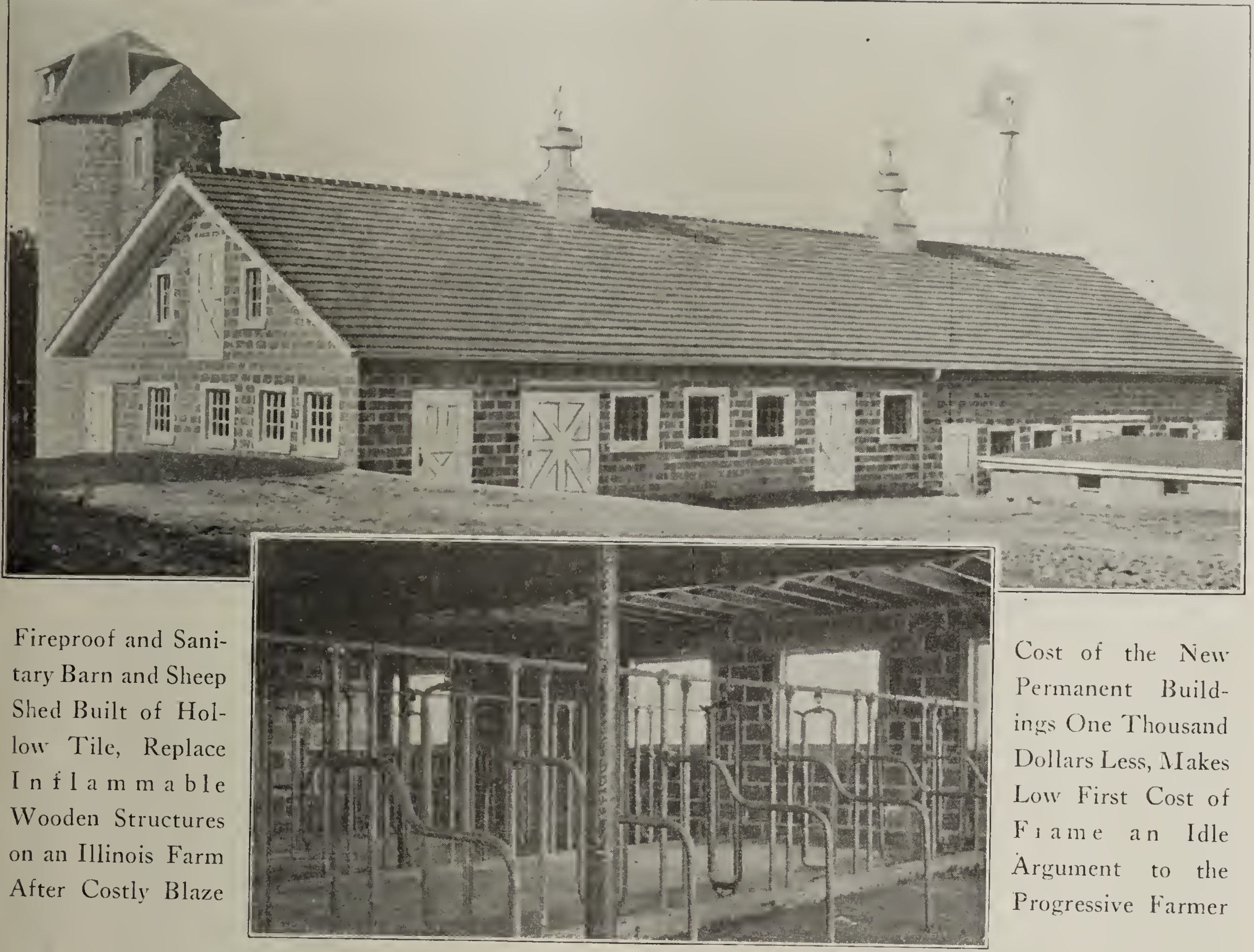
Readers of "Brick and Clay Record" who have been to the exposition will recognize the picture that is printed here—those who are going to go, will have a chance of meeting the original, face-to-face. If you have gone, or if you do go, and have, or have had a chance of seeing and hearing the work that "Dick" Kimbell is doing for clay products—particularly brick—you will be glad that you subscribed to the fund that built the house, and which gave other brickmakers the courage to advance the money necessary to put "Dick" Kimbell to work in your behalf. Of course, if you did not subscribe, you will feel a little bit ashamed but that can be remedied by a little letter and a—not so little—check, to the order of Charles Bonner, treasurer, Panama-Pacific Clay Products Association, Chamber of Commerce, Chicago, Illinois, where it will be put to work, doing you and the industry in which year are engaged, a world of good. It is not altogether necessary, at that, for one to either see or hear "Dick" Kimbell at work. One has only to think of the throngs that are going to San Francisco, led thither by the vacation spirit that persists, despite the fact that business has not been all it would have been, had no war in Europe put a damper on American prosperity. The war has helped the Exposition, which has already passed the point where it is in debt.

The people who are going to the Exposition are, for the most part, the kind of men and women who are very apt to build. It is up to you to help in educating them to use burned clay.

Fire Teaches Farmer a Lesson

Fireproof and Sanitary Barn and Sheep Shed Built of Hollow Tile, Replace Inflammable Wooden Structures on an Illinois Farm After Costly Blaze

Cost of the New Permanent Buildings One Thousand Dollars Less, Makes Low First Cost of Frame an Idle Argument to the Progressive Farmer



Hollow Tile Dairy Barn, With Interior of Cow Stable Shown in Insert, on the Farm of J. B. Berryman, DuPage County, Illinois

WHEN A BARN housing cattle, horses or other farm animals, is destroyed by fire, says "Farmers' Review," resulting in most cases, in the loss of prized stock, it represents even more than a monetary value to the owner. Someone was to blame. Someone was smoking in the hay or had carelessly thrown away a lighted match which found a resting place in inflammable material.

One night about two years ago, on a two-hundred and thirty-five acre farm in DuPage county, Illinois, a barn and sheep shed was destroyed by fire, resulting in the loss of eight head of cattle, six horses and one sheep. Fortunately there were not many head of cattle in the barn at the time, and, owing to the fact that the sheep shed did not burn as rapidly as the barn, only one of the animals in that building was lost, but all of the horses on the farm perished in the blaze. When the fire had burned itself out and the insurance adjusters came around to settle, it was found that the total loss amounted to $7,500, of which $3,500 was covered by insurance. The remaining $4,000 was an absolute loss to the owner.

But it was not the monetary loss that affected the owner, J. B. Berryman, most. The deepest impression that the fire left with him was seeing his animals burned alive—creatures he had grown to love—and when he came to replace his former wooden structures, he resolved to erect buildings that would be as fireproof as possible.

His new barn, which is of the very latest design, is 37 feet wide and 100 feet long. In the construction of this building, concrete footings were first laid, on which was placed a foundation of hollow clay building tile 13 inches thick. Upon this foundation were laid 8-inch walls—also of hollow tile. The barn is a story and a half high and the roof is covered with red clay tile shingles, being drained on each side by galvanized iron gutters.

On the interior the floors (except in the stalls), gutters and troughs are of cement throughout. The first floor of the barn is divided into two parts by a 6-inch tile partition, the west end being used as a cow barn while the east end shelters the horses. In the cow barn there are 16 stalls extending north and south in two rows down the middle of the barn. On the east end of this room there are two maternity stalls, while the west end is occupied by one such stall and a bull pen. All of the stalls are equipped with metal stanchions, partitions and gates.

At the northeast corner of the building is located a hollow tile silo, 34 feet high, and having a capacity of 80 tons. Access to this silo is obtained directly from the cow barn through a door at the bottom of the chute, making a convenient feeding arrangement and eliminating the necessity of the men exposing themselves when getting at the silage in cold or rainy weather.

End View of Dairy Farm, Showing Part of Hollow Tile Silo to the Left

The floor of the loft over the cow barn is constructed of pine flooring carried on 2x8 inch joists. These joists in turn are carried on steel "I" beams, which are supported from the ground floor by iron posts. No use is made of this part of the loft, the only object in it being a large water tank, which in the future will supply the pressure for the barn and yard.

The horse barn in the east end of the building has five stalls, in which are kept four young mares and a stallion. These stalls are of wood, while the floors are laid with cement. Owing to the storage of hay in the loft above this part of the building, extraordinary precautions against fire have been taken. In the first place, the floor of the loft is of concrete laid on expanded metal lath, which is carried on small steel "I" beams, which in turn are supported by iron posts from the ground floor. The loft itself is divided from that part of the building over the cow barn by a tile partition, which is a continuation of the partition on the first floor. In addition to these precautions, the hay is baled to reduce the fire hazard to a minimum.

In addition to the five stalls above mentioned in this barn, there are two foaling stalls in the southeast corner, while the northwest corner is occupied by a harness room, which is separated from the main room by tile partitions.

The entire building has an excellent system of ventilation, consisting of intakes which are built of brick with openings next to the floor. These are well distributed throughout both barns and operate to keep the building warm during the cold weather by removing the cold air from off the floor and at the same time permitting fresh air to come into the stables. These intakes are continued on through the loft in the form of wooden air shafts covered with building paper to make them tight, and end in two ventilators on the roof of the building.

On the south side and extending at right angles to the barn is a sheep shed, which, like the larger building, is constructed of hollow clay building tile. The north half of this shed is completely closed in on four sides, but the front wall of the south half has been left out, making a summer shelter for the sheep and a noonday feeding and resting place for the horses. The walls of this shed were laid on concrete footings and brought to a height of about nine feet in front. A low-pitched, lean-to roof covers the shed, which is drained with a gutter in the back extending the entire length of the building. The roof is covered with a red, fireproof composition roofing.

This shed offers the best of protection to the sheep in winter weather, owing to the fact that it faces east. In the section of the country where these buildings are located the prevailing winds are from the west, and very little of the shed is exposed on that side. In the north end on the west side are four windows which are fitted with sash and glazed. These openings not only admit the sunlight from the west, but also offer a means of ventilation. On the east or front side of the shed, the windows are not glazed, being covered during the cold months with cheesecloth, which provides plenty of fresh air without a draft.

Upon inspection there would seem to be little doubt but that Mr. Berryman obtained, in the construction of these buildings, just what he desired—thoroughly fireproof structures. There is little to burn about them. They are proof against the menace of the most careless farm hand.

In addition to being fireproof, however, these buildings are sanitary, being easily cleaned and kept clean. There are floor drains in each of the barns and water pipes equipped with faucets extend up from the floor, making frequent washings convenient and thorough in their cleansing. There are no parts about the barns or shed to rot from the action of excess moisture, leaving little opportunity for the collection and harboring of germs.

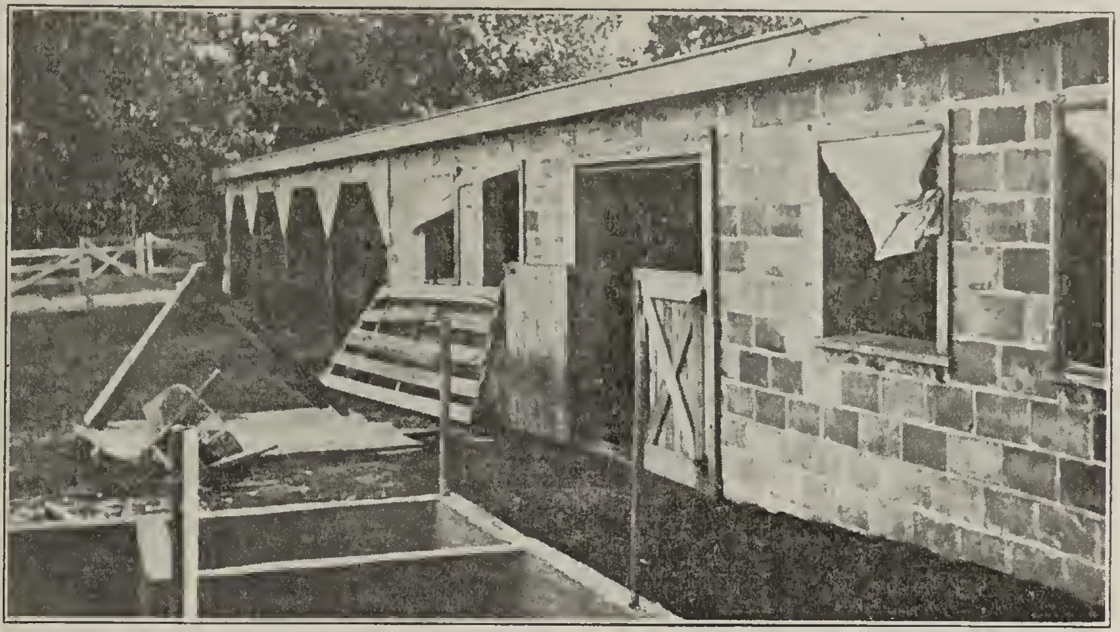
With well-drained floors, these buildings will always be dry. The difficulty with most masonry farm buildings is that they are apt to be damp, due to the condensation of moisture from the warm inside air on the walls. This objection is eliminated by the hollow type of wall used in the construction of the buildings. The insulating properties of the air spaces in the tile prevent the condensation of moisture on the interior walls by keeping these walls at the same temperature as the interior of the building.

West End, or Rear, of Long Hollow Tile Sheep Shed, Looking Toward the Barn

While dryness is an important factor in the stable, it is more so in the sheep shed. It is a well-known fact that sheep do much better in a cool, dry atmosphere than in a warm, moist one, where they are liable to contract "foot-rot" and other diseases. It will, therefore, be seen that the shed, which is the driest, is best for the sheep.

The farm, as has been mentioned, covers about 235 acres, of which 50 are in pasture, 40 in corn, 30 in oats, 12 in alfalfa and the rest in miscellaneous grains, timothy and timber. The entire crop will be fed to the cattle, the silo taking most of the corn.

Mr. Berryman is not carrying many cattle at present, but is just beginning to stock up, it being his intention to have a full barn in the fall, when he will go extensively into the breeding of high-grade Shorthorn cattle. He keeps about fifty sheep, this number being very nearly constant throughout the year.



The Front, or East Side of Sheep Shed, Which Faces the Barn Yard, With Manure Pit in Foreground

Panama-Pacific House Plans on Sale

Complete working plans and specifications of the model brick house that has been erected at the Panama-Pacific International Exposition, are now on sale, and can be obtained for $5, a price that includes complete specifications. These plans are drawn to quarter-inch scale and are blue-printed. The specifications are printed and include the conventional "general conditions," the specification for earth work and masonry, carpentry, sheet-metal and tile roof, lath and plaster, painting and glazing, electric wiring, sewerage, plumbing, gas-fitting and heating.

The plans have been figured by a reputable builder in Evanston, a suburb of Chicago, and found to call for a house costing about $6,300. It has a large basement, with provisions for a store-room, coal-room, laundry, furnace-room and vegetable storage. The first floor has a dining-room, a sun-parlor, a living-room, kitchen and reception hall. The second story has three bed-rooms, a sleeping porch and a bath-room. The arrangement is novel, comfortable and in accordance with the best architectural practice.

These plans and specifications should prove useful to any brickmaker who wishes to help prospective customers to a better style of architecture than that with which the average small town architect is familiar. The careful way in which the specifications are drawn will be a revelation to the man who has had some experience with the kind of specification that needs almost as much interpretation as a diplomatic correspondence.

The plans and specifications may be obtained by writing to the Panama-Pacific Clay Products' Association, 133 West Washington Street, Chicago, or to "Brick and Clay Record." The price is $5 for the complete set.

Ohio State Journal Endorses Brick

In a recent issue of the "Ohio State Journal," published in Columbus, an editorial was printed that contains some encouragement for the men who are said to think that the paving-brick business is very much like what General Sherman said war was. The editorial follows:

"The experience of the last few years, in which the character of traffic on the public highways has changed so remarkably and so rapidly, proves that brick is the best paving material now known for country roads. Brick roads cost more to build than macadam or concrete, but they last so much longer that they must be cheaper in a term of years. A brick road surface, properly laid at the right season of the year, requires almost no attention and is practically indestructible.

"Macadam, on the other hand, has proved its unsuitability for present-day traffic. Some of the fine macadam roads in this county, built only two or three years ago, are worn out already. They must be worked on almost all the time to keep them free from holes and ruts. They simply cannot stand up under the strain put upon them by automobiles. Concrete as a country-road pavement is still more or less in the experimental stage. It is cheaper than brick but it does not seem able to withstand the freezing and thawing of spring and fall and a cracked and seamed concrete road is a miserable thing and is dangerous. In the light of present knowledge, brick is by all odds the most satisfactory paving material for country roads.

"Our county commissioners have done nobly in their work of road improvement. Franklin county's roads now are nothing to be ashamed of; they are almost uniformly good, in fact, but the only way they are kept so is by almost constant repairs. If they had been surfaced with brick, instead of macadam, they would give much better service, last much longer and probably cost much less in the end. The commissioners will do well now to give up macadam and go over to brick, as new road construction becomes necessary. We hope within a few years to see every main Franklin county road paved with brick to the county line."

Iowa's Judge-Clayworker Retires

Judge J. L. Stevens, of Boone, Ia., a man who has been prominent both as a brickmaker and a local administrator of justice, recently disposed of his interests in the Boone Brick, Tile and Paving Company and, it is believed, will retire permanently from the industry.

The judge's common stock, together with that of A. B. Scott who was associated with him in the ownership of the Boone plant, was purchased by W. H. Brecht, H. F. Graefe and others of Des Moines. The judge retains his preferred stock. Mr. Brecht will have the management of the entire plant, the business being conducted as usual. The company, however, expects to make certain improvements in its equipment in the near future, after which business will be pushed as much as possible, particular attention being paid to the promotion of the company's line of rough-textured face-brick. The present annual output of the plant is 15,000,000 brick.

A Hollow Tile and Brick Residence in Massillon, Ohio. This House Contains Five Rooms and Bath, is Wired for Electric Light and Piped for Hot Water and Gas. It has Hard Wood Trim and Hot Water Heat. It Cost $2,200—$400 Less than the Contract Price in Frame

Saving Fifteen Per Cent By "Switching From Frame to Brick"

EDITOR'S NOTE: Reads of "Brick and Clay Record" are urged to send in information similar to that given in this short story. Instances of this kind are of the greatest possible value to the industry. They are worth whole pages of theoretical costs, for they cite specific instances where prospective builders may see for themselves the truth of the claims that are made for burned clay.

COMPARATIVE FIGURES, showing that burned clay is more economical than frame in the construction of small residences, have been made, and will be made more convincing as time goes by. Comparative figures that conclusively prove that brick is the *cheaper in first cost* are much less plentiful.

We are indebted to Melville McC. Everhard, president of the Everhard Company, of Massillon, Ohio, for the photograph from which the above illustration was made, and for the following figures:

The house is 38 by 26 ft., not including the porch, which measures 8 by 26 ft. It contains five rooms and bath, and has hard wood trim in all rooms except the kitchen and the bathroom. Figures were first taken on frame construction, and the lowest bid received from a responsible contractor was $2,600. The owner, Fred L. Ertle, was prevailed upon to have his plans refigured, and to substitute hollow-tile foundations, with hollow-tile exterior walls, faced with rough-textured face-brick at $15 per M., delivered at the building. The result was that the contract was awarded to Al. Hesse, a local mason, at $2,200. The house was built for the latter sum, which included electric wiring, gas and water piping and a hot-air furnace.

Making Your Trade Paper an Employe

The trouble with most of us is that we do not regard technical papers in the right light, says N. G. Near, in the "Practical Engineer." We do not aim to make them serve us so much as we look to them to amuse us. Whenever we run across something that looks uninteresting we are inclined to call that article "dry" without giving it a chance to prove that it is really interesting reading. We are attracted by pictures, and if an article is not as well illustrated as those that appear in the fiction magazines, we have a way of putting it aside until we have more time—a time that never comes. I endeavor to make the technical papers that I subscribe for, my employes. I find that although I employ them at a very low yearly rate, the counsel and advice they give me is that of high salaried men—superintendents of big plants, noted ceramists and able writers. It would be impossible to secure the advice of men of this calibre in any other way.

For the few dollars that I spend in this way, I get many dollars in return, and besides, I have the pleasure of communing with the "men higher up" in the industry that I have chosen. And it is by communing with them that I hope to aspire to that "higher up" position, sometime in the dim future. I am aware of the fact, however, that if I do not take advantage of every chance to learn what they are ready to teach me, and so find the way to follow, or beat their methods, advancement is not for mine.

Builders' Week at San Francisco

The builders of San Francisco, or rather, the rebuilders of that city, are going to have a special week of rejoicing. It begins Monday, October 18, and will end somewhere in the wee hours the following Saturday night. Its center of activity will be at the exposition grounds, but its feeling of good fellowship will extend to the uttermost parts of the city of the Golden Gate.

The rebuilders of San Francisco (and this includes the men who make and sell building material) hold out a cordial hand to their constructive brothers all across the continent. They ask them to lay aside the cares of life—to forget the labor troubles and bank troubles and all the other ills that builders' flesh is heir to—and turn their eyes toward the setting sun.

To be a builder—to make a building material or to sell it—will make you one of a great army that will invade San Francisco the middle part of this month. It means that you will be one with a host of good fellows—men who, for the most part, have learned their lesson in the school of experience and earned their bank balance with muscle, sweat and brains. It means a good time to see the exposition and, incidentally, the brick house *built for you* by a few brickmakers who believe in the future of burned clay as a building material.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

The First Burn On a New Kiln

708. *Iowa—We would like to have you tell us how you would make the first burn on a kiln built as per the diagram enclosed and set with dry pressed brick. Please describe the drying off, the watersmoking and the burning, remembering that this kiln is down-draft.*

Your question would indicate that you had set the brick in the kiln before making up your mind as to the best way of burning them. It may be that we are wrong in this point and consequently we are going to answer your question in two ways; first—that the kiln is newly built and that the brick have not been set in it, and, second—that the brick are set and that the kiln is ready to light.

A new kiln should be thoroughly dried out before it is set with ware. The walls, floor and crown are saturated with the water that is contained in the mortar, and from any rains that may have occurred during the construction, or after. Owing to the form of construction, kiln walls, floors and crowns do not dry out as rapidly, for instance, as do the walls and floors of a building.

To dry out the kiln close up all of the doors and close every other fire box; close the dampers, leaving the center hole in the crown open; then fire lightly those furnaces that have not been closed. This firing should be continued for at least a full day of twenty-four hours and then these furnaces should be closed up and the other furnaces—those that were formerly closed—should be opened and fires started in them in the same manner as in the others. These fires, also, should be kept burning for twenty-four hours.

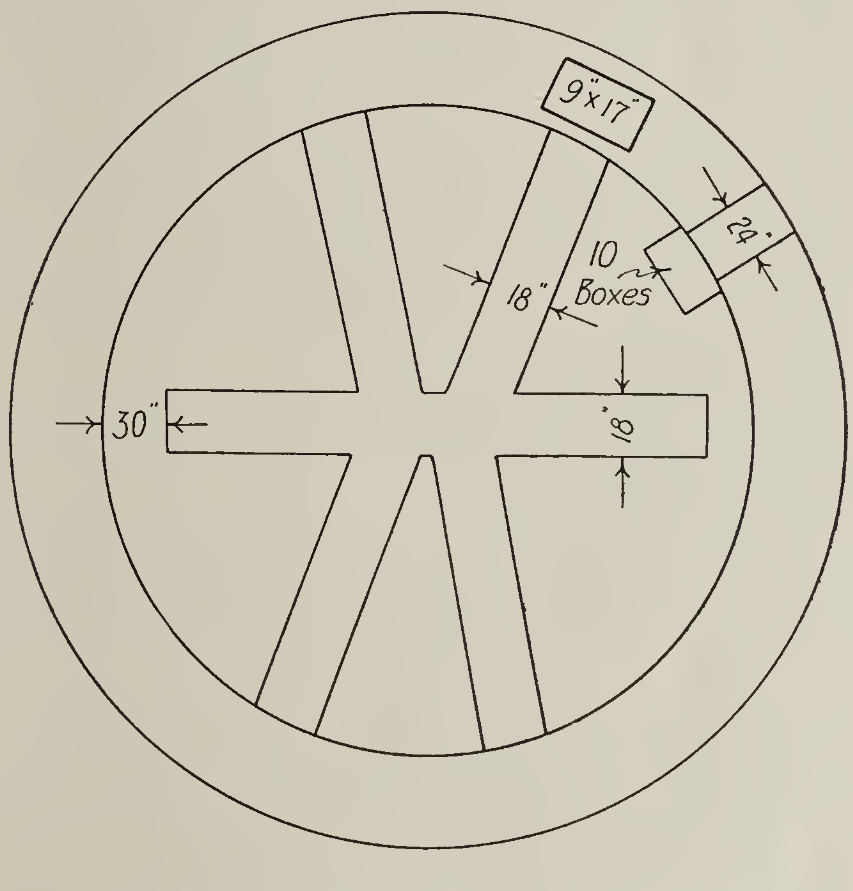
At the end of this period (which is two days) close up the crown holes and open the dampers, firing half of the furnaces with a brisk small fire for at least one day—preferably for two. Use coal for fuel. The process will consume three or four days, but it is much better to take the extra day and make it full four days than to try to get along on three.

It will be found that if this method is followed, the kiln will be thoroughly dried—as dry as though it had gone through a number of burns—and the first burn will have just as good chances of being successful as burns made in the older kilns on the yard—perhaps better, because there will be less air leakage through the walls and crown.

On the other hand, if the brick is already set in the kiln, it will be necessary to proceed without the preliminary drying. This entails a two-fold labor, for it is now necessary to dry out the ware in addition to drying out the masonry and since both processes must be done at the same time, it is no easy task.

If possible, use coke or wood for this drying. Even though either or both of these may be expensive, it is better than to try to use coal for the purpose as you will have a much better chance of securing good ware from the kiln. Be sure that you have thoroughly "mudded" the kiln, sealing half of the fire boxes; open all of the dampers and fire five alternate furnaces slowly for at least three days; then light the balance of the furnaces and fire the entire kiln slowly for three more days. At the end of this time it is safe to proceed with the usual watersmoking fire. Testing with a cold iron rod will indicate the degree of dryness that is being obtained.

When the kiln is dry, build up the watersmoking fires very slowly and fire with the idea in mind that it is better to extend the burning period one or two days be-



The Kiln Plan. The Kiln Has Ten Fire Boxes, 24 by 30 in., with Slant Bar Grates. There Are Four Wall Stacks, 9 by 17 in. and Four Smoke Tunnels 18 by 24 in. The Main Tunnel Is 18 by 36 in. The Tunnel in the Center of Kiln Has Openings 4 by 18 in., Eight Inches Apart. The Kiln Is 24 ft. Wide and 7 ft. 6 in. to Break of Crown, with a 6 ft. Crown yond the usual time than it is to try to burn off in the same time as you would take for an old kiln. In this way you are much more apt to save the ware that you have endangered by setting it in a new and presumably wet kiln.

Careful firing will prevent unequal expansion and consequent deterioration of a new kiln. This is another important point; the rushing of a new kiln is apt to shorten its life very materially.

At the start of the drying, be very sure that all bands are tight and that the lugs are correctly placed. Then, as the kiln expands, loosen the bands at short intervals, a few reverse turns of the taps each time. This procedure keeps the kiln well braced and at the same time allows for the expansion, saving the kiln walls and also the bands.

To Insure Longer Life in Belting

709. *Ohio—From what I can learn from other brickmakers, my belts are giving me poor service. They crack, and are hard to keep on the pulleys, particularly the belt that drives the auger-machine. I am inclined to think that the pulleys are too small, but have no dependable information upon which I can base a calculation of the relative size necessary to perfect efficiency. Is there a book published on the subject?*

A great number of pamphlets have been issued by various belt manufacturers, giving, at least in part, the information that you require. The booklets are distributed freely and you can secure copies for the asking. In the meantime, what follows may be of some service.

If your pulleys were designed too small it is very probable that they are the prime factors in your belt trouble; too sharp a bend around the pulley stretches the outer fibers and covering, or both, causing cracks and other deterioration. This happens particularly if the belt is relatively thick and stretched tight and under heavy load; these probably are your conditions. The remedy is a larger set of pulleys and a loose belt, allowing a sag in the upper or returning side of the belt.

The calculations that are given below will enable you to figure any new installation that you may make, providing you know the machine speed required and the present speed of the line shaft.

To find the length of belt required; multiply the sum of the diameters of pulleys by 1.57 and add twice the distance between shaft centers.

To find the speed of a belt; multiply the diameter of either pulley in feet by 3.1416 and the product by the number of revolutions of the pulley per minute, and the result obtained will be the number of feet the belt runs per minute.

To find the diameter of driving pulley necessary to obtain any speed required on the driven pulley (the speed of the shafting and the size of the driven pulley being known) multiply the diameter of the driven pulley by the number of revolutions of the driven shaft and divide by the number of revolutions of the driving shaft.

To find the diameter of a driven pulley necessary to obtain a given number of revolutions (the diameter and revolutions of the driving pulley being known) multiply the revolutions of the driving shaft by the diameter of the driving pulley and divide by the required number of revolutions of the driven shaft.

To find the change required in length of belt when one of the pulleys on which it runs has been changed to a different size; multiply the difference in the diameter of the old and new pulleys in feet by 1.57 and the product will be the number of feet necessary to take out or put in the belt.

The speed at which belts should be run is, according to the best authority, as follows: Minimum velocity of belt, 200 feet per minute; average velocity of belt, 2,000 feet per minute; maximum velocity of belt, 5,000 to 6,000 feet per minute.

No belt should be run under 200 feet per minute, and the best service will be obtained while the belt is running at 2,000 feet. A belt can be run at 5,000 to 6,000 feet per minute with satisfactory results. When running at a higher rate of speed, the centrifugal force of the belt has a tendency to remove it from contact with the pulley, thereby lessening the horse power transmitted.

In connection with pulley sizes, the suggestions given below should be borne in mind when selecting and installing power belt transmission:

The pulleys should be as large as conditions will permit, as the amount of power transmitted is dependent largely upon the area of contact. Furthermore, a belt of many plies will go to pieces more quickly if run over a small pulley, on account of the varying strain on the inner and outer plies of duck.

In selecting belts, allow sufficient width so that they will run without slipping and still be moderately slack. Tight belts add greatly to the friction on bearings and waste much power. Do not use too narrow or too light a belt. The face of all pulleys should be at least twenty per cent wider than the belts, if possible.

Where belts run at an angle of forty-five degrees or less, apply power (when possible) so that the under side of the belt will do the driving. This allows the upper side to sag, increasing the arc of pulley contact and consequently the driving power.

Shafting should be hung perfectly level and parallel, with pulleys in line, and no projecting timber or flooring should come in contact with the belting. Experience has shown that neglect of one or the other of these essentials causes a very large part of all damage to belting.

Limestone Pebbles in Surface Clay

707. *Ohio—We are desirous of being informed as to the most practical method of separating small limestone pebbles from a plastic surface clay.*

We know of no practical method of securing the elimination of small lime pebbles. The larger stones and bowlders can be taken out by using conical roll crushers and disintegrators, by which the stones are gradually worked out of the machines without passing between the rolls. The small lime pebble problem is best solved by crushing and grinding them so fine that the particles cannot exert a sufficient expansive force to "pop" and so scar the ware after burning.

The cycle in which the lime pebble causes trouble is as follows: The pebble is in the form of limestone and during the process of the burning this is reduced to lime. After the ware is taken from the kiln and placed in stock or used, the lime absorbs water from the atmosphere and slakes. In time it completes the cycle, takes on carbon di-oxide and again becomes limestone.

The operation of slaking is accompanied by an expansion or swelling that is sufficiently powerful to break away large scales of the vitrified clay that covers the lime spot. To overcome this, it is necessary to reduce the size of the lime nodule to such an extent that it no longer has the strength to break out when it is exposed to moisture.

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

The Ideas of Non-Practical Men

Some time ago, as will be recalled by some of our readers, we published a page in which we asked our subscribers to tell us what they found in our pages that was helpful to them, as well as what they believed inaccurate. One of the replies came from L. Hancock, of Sioux Falls, S. Dak., who wrote:

> While I read "Brick and Clay Record" with a great deal of interest, and sometimes wade through the ideas of non-practical men with a trifle of impatience, yet there is so much that interests me that I look forward to its coming. I feel if we were only a little more enthusiastic about burned clay, we, as an industry, would make greater strides. I want to recall your remarks about killing the goose that laid the golden egg. While the matt or rug face-brick have had, and are still having their day, the time is not far distant when a good, smooth brick of a dark red color, that will not fade or change to a dirty mud color, will have just as good a run as the rougher faced brick, that today are catching and holding all of the dust and dirt that the winds and storms bring to the homes of men who pride themselves on being clean—at least in their homes.
>
> I can recall several large buildings that have no color nor beauty now, which, when first built, had so much harmonious color-blending in the brickwork that they were positively beautiful. Today, that effect is gone, and there is no way of washing the surface to restore the color, because that surface is so rough.
>
> On the other hand, I can recall a number of buildings faced with brick of smooth texture, that with every rain are washed clean. In these buildings, the same effect of newness is seen in the brickwork that shone from its surface when the work was barely completed.
>
> In many cases, the matt faced brick are so set as to form a series of ledges or cups that catch the dirt, instead of with a series of sheds to throw it off. The bricklayers do not seem to pay any attention to this point, and I wonder if the manufacturers have ever thought of designating an "up" and "down" to the face of their brick.

Ignoring, for the moment, the other valuable suggestions in Mr. Hancock's letter, and dwelling more particularly upon his statement of reading the "ideas of non-practical men with a trifle of impatience" we wrote him, asking that he point out instances of this sort, so that we could make his further perusal of our pages one hundred per cent pleasurable. His reply follows:

> When a man begins to criticize he stirs up a hornet's nest, for the simple reason that what suits one man's clay will not apply to another man's brick or needs, because of different analyses of clay or coal or oil used in its manufacture. When I said "nonpractical" men, I did not mean men who had had no experience, but men who seemed to have forgotten the great elementary principles of the craft. As they have followed up their own ideas, they have threshed along one certain line; for instance, I know a man who is producing an elegant clay brick with crude kilns, and I know of others who are making mighty poor material with an A1 plant.
>
> As to nailing these nonpractical men, that is a task that only a man on the ground can perform. There is, however, a lot of "gush" given out by machinery men and kiln builders, equipment salesmen and efficiency experts as to the merits of their respective ideas and devices, that sometimes pall on the taste of those that have had to gain their knowledge in the School of Hard Knocks.
>
> The representative of one of your most consistent advertisers told me, some months ago, the following truth, in a few words: His remark was "Hancock, every fresh clay is an experiment that has to be tried out on its own line of needs and conditions—and markets." He is right. Clayworking is in its infancy, and yet rapid strides are being made along certain lines.
>
> Your valuable paper can better afford to be known as an exponent of the ideas of the few who stand highest in the brickmaking world, than to exploit a lot of ideas that are radical and extreme. The men who read the pages of your magazine should be able to swear to the accuracy of every statement that is contained in them.
>
> Of course, you are not responsible for all of the ideas expressed by your writers. Personally, I would rather not be heard from at all than to give expression to a lot of impractical stuff that is misleading. There are two or three concerns in Minnesota that have been misled into erecting plants at points where a few sober thoughts as to the material that nature had put into the ground upon which there plants must draw for their supply of raw material, would have cut the number of brick plants by at least two or three, and at the same time, saved a lot of much needed money. What is not a help to us is a distinct hindrance—I believe that is the best way of saying everything that I have written in this letter.

"There are now and always will be," said Charles T. Root, speaking in the Forum in Industrial Journalism at the New York University, "two kinds of papers in every business class—those with actual independence and those without it. Just as there are canal boats that drift with the stream or have to be towed, so there are periodicals which keep to the line of least resistance; and just as there are steamships which do not have to rely on wind or current, so there are papers which carry down deep in their hulls their own motive power, which, when they feel that the wind is adverse or the current going the wrong way, do not hesitate to get up steam and sail against them. It is to the latter class that the future belongs."

The men who have, as Mr. Hancock says, been so in love with their own ideas that they have only followed certain lines, are in the way of being specialists in those lines. To the man who has gone slowly, and developed as a spreading bush rather than as a pine-tree, the "ideas" of these specialists are "radical."

The function of a journal that leads an industry is to give a medium for the exchange of ideas. It is the air-scout of the business it tries to serve. The men engaged in the clay-pits, the machine-rooms, the kilns and the sales-departments of clay-plants are too busy to travel or correspond with many of their colleagues—and their industrial journal must do it for them. It should be, and is, a clearing house of ideas for the improvement of the business as a whole, and an arena for the free, frank discussion of all important subjects—the editor presiding; he is a judge and not a dictator.

If the fact—and it is a fact—that every clay is different from every other clay, and so presents an individual problem, had prevented the publishing of untried discoveries, unfinanced inventions and even of unproven theories, we fear that the "giant strides" which Mr. Hancock admits have been made in the ages old infant industry of clayworking would have been more like the timorous steps of one who gropes his way in the dark.

Wherein One Clayworker Helps Another

It is with considerable satisfaction that we print the following letter from Carl F. Kneisel, secretary and treasurer of the Sheridan (Wyo.) Brick and Tile Company. It will be recalled that a letter appeared in the pages devoted to the "Letter Box" in the August 17 issue, in which Mr. Kneisel asked for some information as to the best way of laying brick sidewalks. In connection with that letter, we suggested that some of our readers communicate direct with Mr. Kneisel, giving him the benefit of their experience. As a result of what was done for him, Mr. Kneisel writes again, this time under date of Sept. 13:

> Your favors of the 13th and 18th ult. have been received also the magazine with the letter I wrote you relative to sidewalk brick, for all of which I thank you very much. As you have so kindly shown so much interest in the matter, I think it no more than right that you should be informed as to the results obtained through your efforts. Therefore I am enclosing herewith the answers that I received. In view of the fact that these parties have shown so much interest in a fellow clayworker's problems, we thought you might wish to make some mention of it in "Brick and Clay Record." It is truly gratifying to see this spirit of good fellowship manifested.

We agree with Mr. Kneisel that the spirit of helpfulness shown in the letters he received is worthy of mention in these columns, and take pleasure in printing the replies he received. The first one is from J. M. Cutshall, of Cutshall & Cutshall, Brazil, Indiana, and is dated August 20:

> In answer to your request for advice in "Brick and Clay Record" of August 17. A good brick sidewalk will be made by grading the walk to a depth below freezing and then making a body of sand, gravel or coal ashes to within five inches of the top of the finished walk. Place two inches of concrete on top, rodded uniformly, the concrete mixture being one part of cement, two parts of sand and five parts of gravel. Then lay the brick on this, in good cement mortar (say one part cement to two parts of sand), making a flush joint at both ends and sides. A half-inch joint, neatly struck, will insure your success. No weeds or grass can grow, and every rain will clean the walk. Of course, the brick should be vitrified.

The second letter was from H. Zinn, of the Brooklyn Brick Company, Indianapolis, Ind. It is dated August 24, and reads:

> As suggested in "Brick and Clay Record" August 17, and in response to your inquiry as to the best and cheapest way to build a sidewalk with brick and to prevent weeds or grass from coming up through the joints, would say that if no cement is placed between the brick, the weeds will be almost certain to come up in the walk, unless you have a very good amount of sand or cinders as a bed for the brick to set in. A good sand cushion is necessary not only to prevent the weeds, but also to keep the brick nice and even. It is also necessary that the sidewalk has perfect drainage so that the water cannot accumulate, otherwise the freezing and thawing will lift the brick out of their places. If you place them in a good bed of cinders or sand (or first cinders and then sand on top), and then use good, rich cement between the brick, it will be impossible for weeds to come up. For your information, I would state that some of the finest apartment houses and residences in Indianapolis have their front walks out to the street built with hard-burned brick, as this not only makes a good sidewalk but is considered more "stylish" than cement sidewalks. The $200,000 residence built here by ex-Vice-President Fairbanks has a wide front walk, built with brick, and running from the residence to the street.

The care with which these replies have been written gives some suggestion of the fund of information that may be obtained by any clayworker for the trouble of asking. Not only did Mr. Kneisel's letter bring him some excellent advice, but helped him in his belief that his fellow clayworkers were willing to take a little trouble, once in a while, to help a friend in need. It also started some thought along a somewhat neglected line of brick distribution. On another page of this issue will be found a short article on brick sidewalks. As our readers find additional information on this point, we would be glad to receive and print it.

Efflorescence Article Should Be Distributed

It looks as though we were "getting somewhere" in the matter of efflorescence prevention—not the making of brick that will not whitewash, but of brickwork that will be eternally free from this defect. One of our readers, John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, of Evansville, Indiana, writes, under date of Sept. 18:

> Kindly send us five extra copies of the last issue of "Brick and Clay Record" (Sept. 7). We wish to present each of the local architects with a copy, in order that they may read the article by Arthur E. Williams on "How to Prevent Efflorescence in Finished Brickwork." This article should be printed in pamphlet form and placed in the hands of every architect in the country..

The article in question would make a pamphlet of eight pages, six inches by four, which is one of the sizes approved by the various chapters of architects that have given the matter of uniform sized advertising and advisory booklets their consideration. The number of architects in the United States is roughly estimated at 7,500. Having this number of pamphlets printed from the type now standing, would cost approximately $75. A like number of envelopes would cost $20. Add to this the postage ($75), and the cost of addressing (which is about $30), and you have a total of about $200. This is a work that some association of brick manufacturers could do—preferably manufacturers of face brick. No individual would be warranted in expending the amount, unless he shipped his product thousands of miles north, east, south and west.

One Point That Was Overlooked

In a recent issue we published a picture of the front cover of one of our contemporaries, upon which appeared the advertisement of the American Arch Company. In our comments upon it, we called attention to the fact that this company, while one of the Great Clay Family, was evidently a rich relation. In a letter written Sept. 13, Harold D. Savage, the vice-president, writes:

> We note with interest your notice on page 347 of the Sept. 7 issue. We think, however, that you overlooked one big point that might make a little sermon to the other brick men and that is that we are willing to spend good money in order to educate our customers in the most economical way of using their brick. Perhaps that is why we are a "wealthy relation."

We certainly did overlook the point, and we are just as certainly glad that Mr. Savage called our attention to that fact. The secret of success in the brick game, as in every other industry, lies in having growing list of satisfied customers. Many a man has made a good brick, and then lost out because it was used ignorantly. It pays to educate the man who uses your material, even though, in so doing, you educate him in the use of similar material, made by a competitor. In the last analysis, the man who makes the best material will win, since the users will know what they are buying.

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Belt Elevators Used in Elevating Clays and Shales

DIMENSIONS, SPEEDS AND HORSE POWERS

In the following table are given the possible speed with, and the horse power required for, belt elevators with given size buckets. It is not to be understood, however, that these figures apply only to elevators with buckets of the size indicated. Rather, these sizes should be taken more as units of volume. When this is done, the following table will be found to have a general application in the use of belt elevators:

Size of Buckets or Their Equivalent in Volume	5x7⅝x11 in.	5½x9x12 in.	7x10½x15 in.	8x11¾x18 in.	9x13x21 in.
Speed of Buckets	200 ft. per Min.	200 ft. per Min.	180 ft. per Min.	180 ft. per Min.	180 ft. per Min.
Width of Belt	12 in.	13 in.	16 in.	19 in.	22 in.
Size of Head Pulley	16x12 in.	18x13 in.	20x16 in.	20x19 in.	22x22 in.
Speed of Head Pulley	48 R.P.M.	43 R.P.M.	35 R.P.M.	35 R.P.M.	31 R.P.M.
Size of Driven Sprocket at Top of Elevator	28 Teeth	31 Teeth	37 Teeth	38 Teeth	41 Teeth
Speed of Driven Sprocket at Top of Elevator	48 R.P.M.	43 R.P.M.	35 R.P.M.	35 R.P.M.	31 R.P.M.
Size of Driven Pulley on Jack Shaft	34x6 in.	38x7 in.	38x8 in.	42x10 in.	44x12 in.
Speed of Driven Pulley on Jack Shaft	134 R.P.M.	134 R.P.M.	130 R.P.M.	122 R.P.M.	116 R.P.M.
Capacity per Hour	50 Tons	75 Tons	90 Tons	125 Tons	175 Tons
Horse-power Required for Thirty to Fifty Foot Elevator	5	6	8	11	16
Horse-power Required for Fifty to Seventy-five Foot Elevator	7½	9	12	16	24

In designing an elevator to do a certain amount of work, it is wise to select oversize rather than a possible undersized machine. Wear and tear is thereby reduced, and chocking is, under ordinary circumstances, eliminated.

Watch Your Cutting Wires

While the first cost of cutting wire is small, compared to other necessary expenditures, the function of these little shiny metal strings is so important that they can create an expense that is out of all proportion to their cost. The very fact that they do break makes it necessary to have a man stationed at the cutter—a man, as a rule, who can be considered as being in the "trained labor" class, and so appearing on your pay-roll. If the wires were not apt to break, he would be somewhere else—either doing some productive work on your yard, or—off your pay-roll.

The supposition is that no wire, fine enough to make a clean cut, is not strong enough to withstand the rough wear it receives in cutting brick, yet it is not outside of the realms of possibility that such a wire could be produced, or some cutter made that would relieve the conditions that now make it sure that there will be some breakage, and that it will occur often enough to make it necessary to have a man on the job all of the time, to look out for it.

Meanwhile, when we say "watch your cutting wires" we mean—buy the best wire you can get, and, if you do your own twisting, see that the work is done right. If you buy the wires already looped, examine each loop before hanging the wires alongside the cutting table.

Resetting a Derailed Shovel

An old steam-shovel engineer makes the following suggestion: If the front wheels are off of the track, fill the dipper with rock or other heavy material, loosen up one jack arm and swing the dipper over this side. This will raise the other side of the shovel. Put a number of men on the up side jack and tighten it down as hard as possible. Swing dipper over high side and screw down low side jack. Continue this operation until the shovel is off the center bearing. If there is a key in the king bolt the trucks will be raised off the track.

If the rear trucks are derailed, lay blocks in usual manner in order to assist the wheels to climb on the rails. If this is unsuccessful, drop the dipper and boost by means of the thrusting engines.

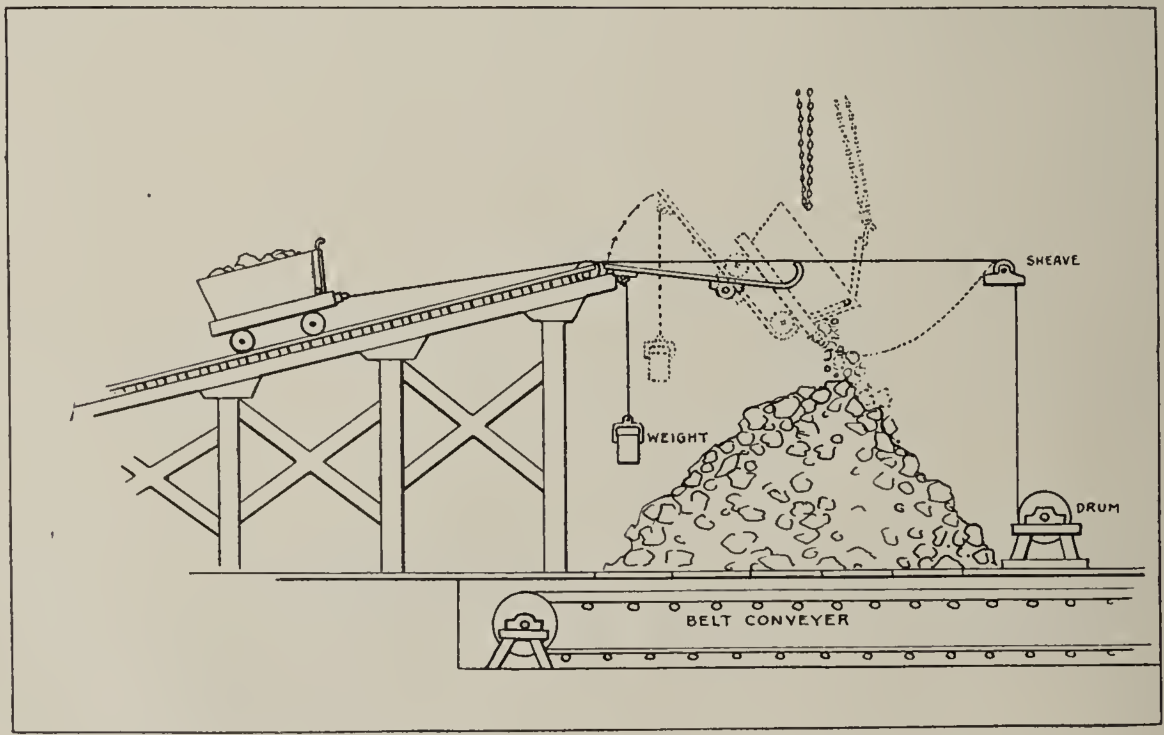
Emergency Steam Pipe Repairs

The many hundreds of feet of piping in the boiler-room, heating system and steam dryer bring an ever-present danger of leakage. Every point magnifies the risk. Plant owners have reason to dread this tendency of steam pipes to leak, for not only does it mean, at times, a difficult repair, but the complete shutdown on some important part of the plant.

A new clamp that can be speedily attached and without the necessity of shutting off the steam, is in use in a Chicago plant and is giving excellent results, saving its cost many times over in the course of a year.

Getting "More than Your Money's Worth"

A letter came to this office some days since, from W. C. Trainer, superintendent of the Dundas (Ohio) Tile Company. In it he said that a certain idea which he had received through "The Superintendent" department in this magazine was worth the cost of a lifetime's subscription. Figuring out that Mr. Trainer expects to be above ground for some time, this would indicate that he felt he was getting a little more than his money's worth out of the $2 a year he pays for "Brick and Clay Record.



The Development of a Device First Published in "Brick and Clay Record" in March, 1914, and Used With Great Success by an Ohio Clayworking Plant

At any rate, his letter aroused a certain amount of curiosity, and we wrote him asking what nifty little idea it was that made so much money for him. Back he comes with the answer:

"I am enclosing you the sketch which we found in your valuable paper of March 7, 1914. Although there were no measurements, as you can see, we figured that part out for ourselves and made a slight change, as our drum or hoist is downstairs in the engine room. We placed a sheave in the place where the hoist is on your original sketch. Our rocker irons are 16 lb. steel rails 8 ft. long, with the ends bent to fit a 14 in. car wheel. Our car is 6 ft. long on the inside, 2 ft. 2 in. wide and 2 ft. deep. The front wheel next to the cable is 12 in. from the end and the rear wheel is 15 in. from the rear end. With the rockers to about balance the car, the whole business dumps fine.

"Our car holds about 2,000 lbs. of wet clay and we haul it up a 30 ft. incline with a ⅝-in. wire cable. The engineer tends to the drum.

"We have been using this device ever since it came out in your magazine and think it is quite a scheme. Without figures, however, it is quite a job to install a rig of this kind and make it work satisfactorily.

"Now, Mr. Editor, we have a few elevators and devices to carry our tile up and down stairs—devices that are very simple and easy to make and to install—one especially. We used to slide our tile down a trough from the second and third story to the kiln, but we found that it was a slow and wasteful way; so we set out to invent a better way, and as a result, we are now loading our trucks on the second floor and run them on an elevator that takes them down and brings the empties up to be loaded. We will be very glad to show any clayworker this device if he will take the trouble to come and see us.

"We are a partnership concern, manufacturing draintile. Four of us own the plant—a school teacher, a farmer, a railroad bill-clerk and myself. We work about twelve men, making tile one day and the next, and the day after; then we shut down and take engineer and all down and fill a kiln. While it is burning and cooling, we make another batch, then empty and fill again. When the weather is good, we make and burn and empty a kiln a week. Our dryer is a shed with a slatted floor.

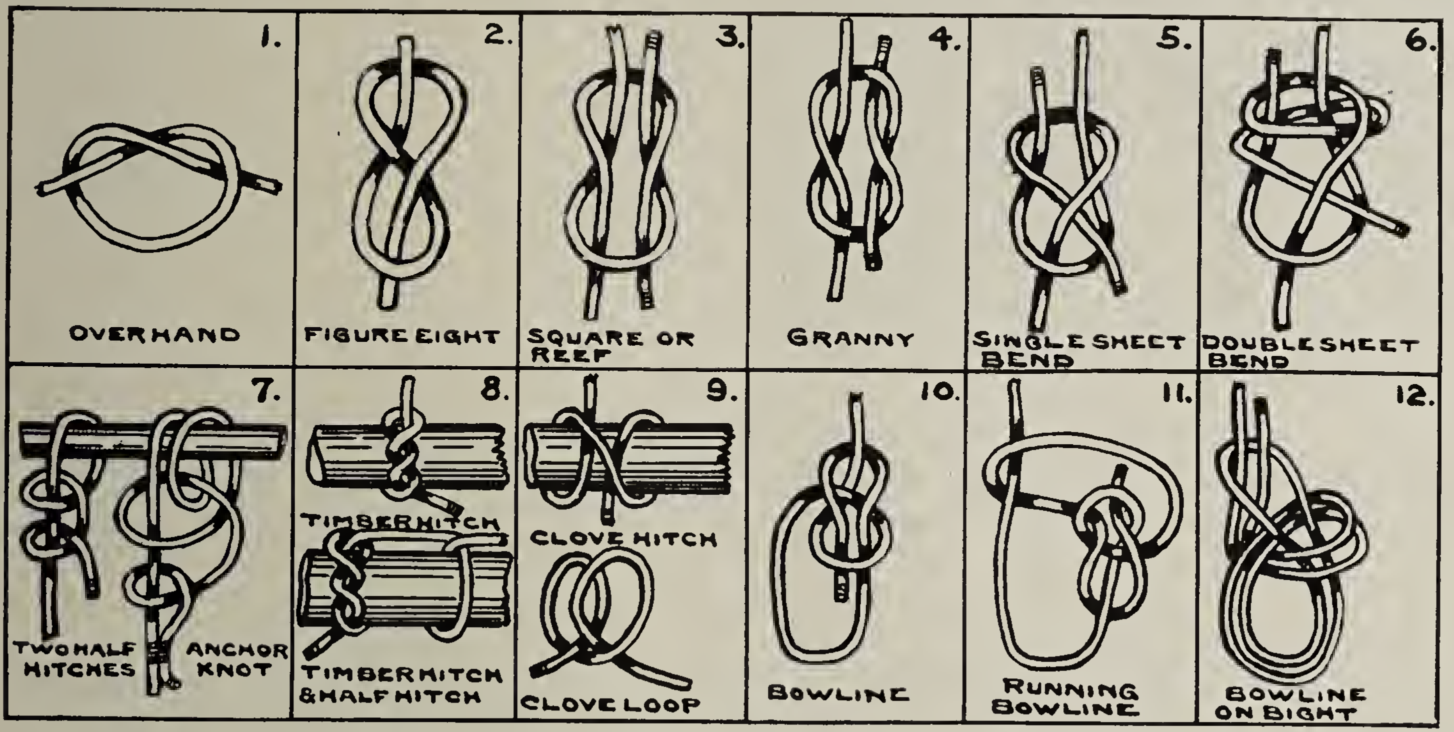
"If this is interesting to you, we will be glad to have you print it. Also, if you want us to, we will be glad to send you a sketch of our home-made elevator."

We sincerely hope that Mr. Trainer will send us a sketch and description of his home-made elevator, and of any other device which he has installed and which is an improvement over the methods formerly in use. Oftentimes, the seemingly simple machine is the forerunner of a more complicated and truly wonderful appliance. Every device that saves labor or improves ware is worth its weight in gold. The up-to-date manufacturer travels from plant to plant, observing what the "other fellow" is doing, but he cannot visit all of the plants, and the best sort of a clearing house for ideas is that which is afforded by this department of "Brick and Clay Record." If it can be developed, so that every time a clayworker installs a new apparatus he believes is his own invention—or that its application is new—would write us a line about it, we could make this department one that would have not only the most intense interest, but the most money value of anything that is today published for the man who makes imperishable ware by burning clay.

Why Explosives Explode

Did you ever stop to think just why dynamite, for instance, when tightly packed and tamped into a drill hole, will explode even though isolated from any possible chance of contact with the outside air or free oxygen? When it is remembered that an explosion is a product of very rapid combustion and that, in order to have combustion, oxygen is necessary, the mystery grows.

The action of explosives and the reason why they develop heat and power can be most easily understood by considering what takes place during ordinary burning or combustion. It is well known that when combustible substances—whether solids, such as wood, coal, charcoal, brimstone or phosphorous; or liquids, such as petroleum, alcohol or turpentine; or gases, such as coal gas or natural gas—burn with air, heat and light are emitted. After this burning or combustion, though some solid substances leave a varying amount of ash as a residue, the combustible part of the substances disappears from view by combining with the oxygen of the atmosphere to form gases. These gases at the instant of their formation are hot, and consequently are greatly expanded.



CORRECT DESIGNATION OF VARIOUS KNOTS

The Efficiency of Knots in Manila Rope, According to Prof. E. F. Miller, of the Massachusetts Institute of Technology, Is as Follows: Rope Dry (Four Tests) 100; Eye Splice Over Thimble, 90; Short Splice in Rope, 80; Timber or Half Hitch, 65; Bowline Knot or Clove Hitch, 60; Square Knot or Sheave Bend, 50; Overhand Knot, 45.

Everyone who has kindled a fire knows that when a combustible solid is finely divided, as when wood is cut into shavings, it takes fire more readily. If a combustible substance be divided still finer—as when wood, charcoal, coal or brimstone is crushed to powder—and then mixed with air and the mixture ignited, the rate of combustion is much more rapid and may become so great that an explosion follows:

In fact, many terrible explosions have been caused by the ignition of combustible dusts suspended in air, not only in coal mines but in bitumen mines, sawmills, flour mills, starch mills and elsewhere. Likewise, the vapors of combustible liquids—such as benzine, gasoline, or turpentine—when mixed with the air and ignited, have given rise to explosions, some of which have been almost appalling in magnitude. Combustible gases are still more likely to cause explosions, because gases form explosive mixtures with the air more readily than do powdered solids or sprayed or vaporous liquids. Many accidental explosions of such mixtures of combustible gases and air have been recorded.

In all these forms of combustion the combustibles burn with the oxygen in the air, and as a result of this burning the combustible elements unite with oxygen to form compounds, such as carbon monoxide (CO), carbon dioxide (CO_2), water vapor (H_2O), sulphur dioxide (SO_2), and still others, depending on the nature of the combustible element present.

Centuries ago it was found that if such a combustible substance as charcoal, instead of being mixed with the air and ignited, was mixed with saltpeter or potassium nitrate (KNO_3), which was found as a coating on the soil in India, the mixture on ignition would burn out of contact with the air, the oxygen necessary for combustion being supplied by the saltpeter or nitrate. It was soon found that such a mixture was ignited with difficulty, and some ingenious person conceived the idea of adding to the mixture a little brimstone, which is easily ignited, so that the combustion of the brimstone might set fire to the mixture of saltpeter and charcoal. The sulphur, saltpeter and charcoal burned rapidly, even when out of contact with air, and thus was gunpowder made.

With the progress of the science of chemistry it has come to be known that there are many other solid substances which, like saltpeter, contain oxygen in a combined form and will, when in contact with a combustible substance, give up their oxygen on ignition, and thus enable the combustible substance to burn out of contact with the air. One of these substances is Chile saltpeter, or sodium nitrate ($NaNO_3$), which is found in large quantities in the desert of Tarapaca in Chile, and is today widely used in making explosives; others are potassium chlorate ($KClO_3$) and potassium perchlorate ($KClO_4$). Still other chlorates and perchlorates have been used in the compounding of explosives.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

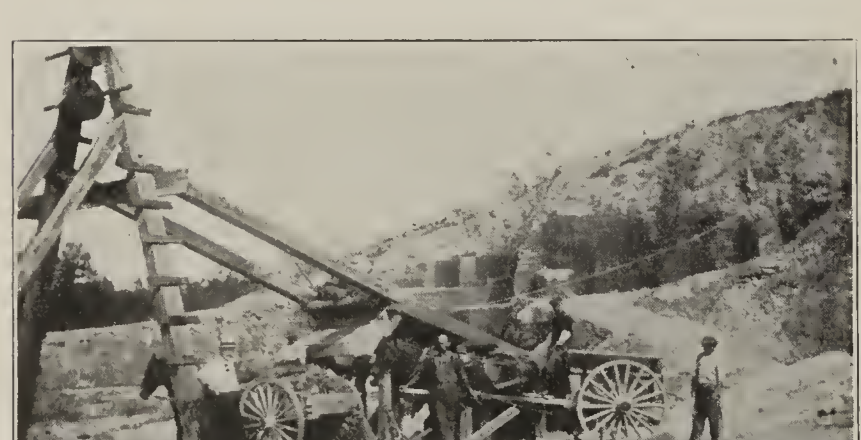
FOR MANY YEARS a combined scraping and automatic dumping machine has been sold to brickmakers in practically every section of the country.

Recent installations in Canada and two in Arkansas have proved satisfactory, and another new one, recently placed on the brickyard of The Atlas Building & Material Company, Hudson, New York, has cut the former cost of excavation almost one-half and is capable of doing twice as much as is required of it.

Pit of the Atlas Building & Material Company, Hudson, N. Y.

The "Hudson Register" describes the excavator in part as follows: "The machine has been put up by I. E. Burkett, the inventor and L. P. James, an engineer of the Georgia company. The excavator digs the clay out of the bank and carries it by cable method to a central point near the pits, and here it is automatically dumped in carts and taken to the pits, where the clay is mixed.

"The scooper then returns for another load. It carries one and quarter yards at a time. Four men, an engineer, fireman, driver and man at bank, run the machinery, and they are able to do the work which by the old way required six men for each pit, and the work is done in much less time. The machine at the yard easily looks after the clay required for the pits to turn out 24,500 brick a day.



Tower of the Schofield-Burkett Excavator. The Scooper is Shown Being Dumped

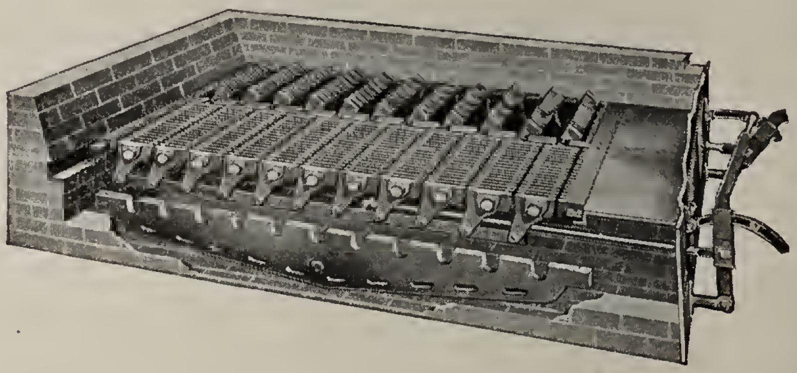
"The machinery is not complicated and there is little to get out of order. One advantage is that the excavator may be run where required, part of the time getting out yellow clay, and a portion of the time blue clay. Today the machine was run into the bank a distance of 800 feet and about 150 feet high, and did the work most expeditiously, and Luther Van Etten, the yard superintendent, was most enthusiastic over its operation. It means that if necessary the plant can be enlarged to turn out a much larger output.

"Two of the machines are now running at the Jova yards at Roseton, and John B. Rose has given an order for a machine of 2,000 yards capacity a day, which he will operate at his brick-yard at Marlborough."

Additional particulars can be obtained by addressing The Schofield-Burkett Construction Company, Macon, Ga.

Grates That Save

Clayworkers are just beginning to realize that the shaking type of grate for kiln furnaces is filling a long felt want, and because of this fact Elmer E. Miller, proprietor of the Canton Grate Company, has experienced a very successful season, installing his shaking grates in kilns.



Canton Boiler Grate

There really was no reason why the kilns should not be accorded the same improvements and care that was expended on the boilers. Every one realized that a shaking grate saved fuel and labor and produced a more uniform supply of heat, but few knew where to secure a grate built for their purpose in any size of kiln furnace. Mr. Miller's company has supplied the want and today there are dozens of successful installations, saving on some plants as high as thirty-three per cent of the fuel.

Canton rocking and dumping grates for boilers have long been in use, and information on both types for kiln or for boiler, can be obtained from The Canton Grate Company, Canton, Ohio.

The C. H. Horton Company, of Painesville, Ohio, has sold Leby & Landis, New Cumberland, Pa., the outfit for a new plant, including brick machinery, steam dryer, steam shovel and dump cars. The plant is expected to start not later than November 1, and has a lot of rush orders already on hand. This plant is owned and built by two Pennsylvania hustlers, who will be apt to make their competitors sit up and take notice. It is located just across the river from Harrisburg, with only a bridge to cross to make city deliveries.

That "Book of Smiles"

It's here again—it bobs up double-monthly—full of song and story, fact and fun. It is a successful little cuss—does what it is intended to do, makes you smile and more—it teaches.

Are you on its list? Better send in your name and get acquainted. Here is a sample of its lighter side:

According to Ring W. Lardner, the author of "You Know Me, Al," the national game is liable to develop into something real interesting if the arguments between players, umpires and fans get any worse than they have been this season. Here is Ring's idea of the report of a game in the future. The heading is: "A Dull Afternoon."

> Anywhere, Aug. 4—(Special)—The Roughnecks won an uninteresting game from the Bulldogs today, 1 to 0. The battle went seventeen innings. Captain Curse of the Roughnecks was called out in the fifth on a foul ball that was caught. Curse naturally protested the decision. It was a mild protest, all that he did being to dive spikes first at Umpire Awful's lungs.
>
> The umpire waved him to the clubhouse. On his way thither, Curse jumped into the grandstand and maimed two deaf and dumb spectators, whom he claimed had insulted him. In the tenth, Manager Mean of the Bulldogs, angry at Awful for calling a strike on a ball that Whiff struck at and missed, drew a carving knife and dug out the official's eyes.
>
> "Now you can see 'em better," he said. For this, the umpire ordered him to the clubhouse. It was three-quarters of an hour before Mean made up his mind to obey the order, and the arbiter was finally obliged to pull his watch.
>
> Mean managed to kill six of the opposing bench warmers with a sledge hammer as he passed out under the bench. Seven of the Roughnecks were banished and fined $5.00 apiece for throwing carbolic acid in the faces of some lady fans occupying a box near their bench. The fines were later remitted.

The Standard Dry Kiln Company, of Indianapolis, Ind., is responsible.

Reports Business Booming

Allen P. Rice, manager of the Clayworkers' Exchange, Springfield, Ill., reports business booming. He says that every sale they make pleases at least three parties—the former owner of the equipment who has no further use for it and who is glad to sell it; the purchaser who needs it and who in purchasing it does so at a saving; and the Clayworkers' Exchange, always pleased to render the service. Through it you may sell any first-class used machinery or equipment you may have on hand that you do not need, or buy the right machine for your especial need. All that it wants is a chance to demonstrate these statements to you.

The Portable Watchman's Clock

Two sales were made recently by Hardinge Brothers, Inc., that will create additional confidence in the merits of their portable watchman's clock.

One order was from the United States Government for six systems to be used on the Panama Canal properties. The sale was made in competition, and suggests that Uncle Sam believes not only in the importance of a watchman's clock to properly protect the canal, but that he believes particularly in Hardinge clocks.

The other sale was made to the Alaska Treadwell Gold Mining Company of Treadwell, Alaska. Twelve systems were installed in what is believed to be the largest mine of its kind in the world.

These two instances speak volumes for the use of these instruments, as well as for the exceptional merit of the systems manufactured by Hardinge Brothers, Inc., 1760 Berteau Ave., Chicago.

And It Carried Two Billion Pounds

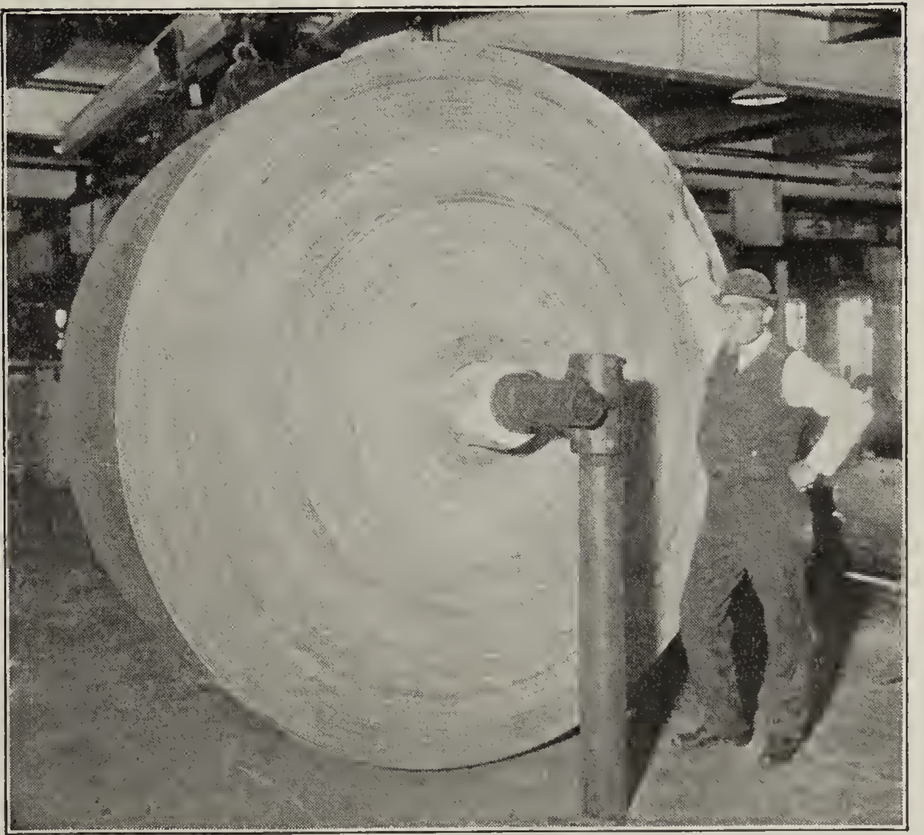
Think a moment—! What is there that could catch and carry 125 pounds in a lump from a fall of four feet at the rate of 3,200 a day? This very problem faced the California Hawaiian Sugar Refining Company nearly ten years ago, and its solution gave them a new conception of—or definition for—service.

February 15, 1906, they installed a 36 inch 7-ply Goodrich Conveyor Belt and since that time it has caught and carried two billion pounds of sugar (every bit of it having fallen that four feet) before there were any radical signs of wear. It was a whopping big belt and was quite an investment, but the service it gave them was way beyond any expectations.

About one month ago this California concern entered its order with The B. F. Goodrich Company for another *long-lived* belt. Gigantic hardly described it. The man in the accompanying picture is 5 feet 11½ inches tall, and he can't begin to reach the top of the roll. A belt 1,443 feet long, 36 inches wide and weighing 11,983 pounds net is a proposition.

Figuring eight hours run without any delays, a bag of sugar would drop onto the belt every nine seconds, and if the speed of the belt was such that it could make 26 or 27 revolutions every eight hours, the bags would rest at intervals of 12 feet apart.

At this given speed, therefore, the belt will carry a continuous load of 60 bags or 7,500 pounds, and every nine seconds its heavily burdened surface will receive the sudden jolt and strain caused by 125 pounds dropping four feet. Such service is unusual in its severity and certainly ample proof of the astonishing strength the B. F. Goodrich Company has succeeded in building into its Conveyor Belting.



Gigantic Goodrich Belt, 1,443 Feet Long and Weighing 11,083 Pounds Net

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Approved Systems from $10.00 up
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Excessive Freight Rates

The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.

Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.

These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.

IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

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Correspondence solicited

The Semi-Monthly Trade Review

WHATEVER ONE'S SENTIMENTS may be with regard to the Anglo-French five hundred million dollar loan, it is hardly to be doubted that its consummation wil result in many direct benefits to American industries. Moreover, in view of the fact that nearly all of the loan has been subscribed at this writing—$430,000,000 of the $480,000,000 which the American underwriting syndicate is to furnish to Great Britain and France being on the books of the syndicate members within twenty-four hours after the first announcement of agreed terms—it would seem foolish to allow foreign sympathies to cloud the individual vision toward the renewed activity in trade that will come with re-established European credit.

So far as the humanitarian side of the question is concerned, it is generally understood that little or none of this immense credit will be used in the purchase of munitions of war, there being an adequate supply of gold at hand for that purpose. The real benefit of the loan to the United States will come in the maintenance of volume in our exports. It is believed that when arrangements have finally been completed and the bonds are placed on the market, there will be an increased foreign demand for foodstuffs, particularly grain, and since the present year will be distinguished by its billion bushel wheat crop and a corn crop three times as large, a heavier export demand with attractive prices will not be unwelcome, particularly in agricultural districts.

In the South, much encouragement is being obtained from the recent sharp advance in cotton prices to the highest level since the war began. A short crop seems to be the dominant factor in this commodity, although the question of exporting without interference is of great importance to those directly interested. Weather conditions continue to be the prominent market influence and better prices are freely predicted. It is claimed by those who have studied the situation that the present cotton crop has been produced for something like four cents a pound less than that of 1914, and that an average price of ten cents per pound will mean prosperity in the South, which has also raised considerable grain and forage crops that will go far toward supplying its home demands.

With the future welfare of America's basic industry—agriculture—so promising, the resulting optimism has been passed along until it has pervaded nearly every line of endeavor. While in the steel industry, huge war orders make a comparison illogical, there is a marked improvement in demand for domestic consumption. A better tone pervades the textile industry, also hides and leather. Whole-

SAY "I SAW IT IN BRICK AND CLAY RECORD"

sale commodity prices—another valuable barometer—still gain in strength.

A radical change has taken place on the New York Stock Exchange during the past few days. In welcome relief to the speculation in war stocks, which has been running wild, utilities of a class heretofore inactive are claiming attention. Railroads and transportation companies are showing more interest in the purchase of future requirements, and while less grain is being moved now by the carriers than last year at this time, there is no doubt but that this loss will be made up by the railroads when the foreign exchange situation is cleared up and grain exports begin to move more freely.

Favorable autumnal weather has given new life to building operations in many cities where the work is being carried on with energy toward completion before the cold weather sets in. This condition obtains in Boston, and in Philadelphia, builders and contractors report a sustained activity in the amount of new work being projected. In Pittsburgh, building reports are conducive to confidence. Baltimore is seeing a moderate activity in the erection of residences, warehouses and other structures, while in the immediate suburbs new manufacturing plants and grain elevators are being planned or nearing completion. Building permits in Chicago during the week ending September 25 totaled $2,173,500 in value, as compared with $1,837,750 the preceding week, and $1,039,950 during the corresponding week in 1914. Activity in the loan market in Chicago is also a feature, indicating a continued activity in building construction, much of which, however, is confined to apartment houses. There is a revival in industrial construction but that is not so marked as yet, although it is thought that it will become so in a very short time.

Common brick on the New York market which, since the latter part of August, had been holding the $6.00 price, "hit the toboggan" during the third week in September, dropping to $5.87½ for the best grades. This cut followed the dullest day—September 15—on the brick market in years. The lower price, however, did not take a further drop, but was maintained until the last few days of the month, when brick again rallied and went back to the $6.00 level.

Intrinsic conditions, as a whole, are sound and there is a good deal of honestly cheerful sentiment about the future. So far as the clayworker is concerned, however, this sentiment must be turned into action to be of any value. Building for the most part during the past year has been confined to the brave investor and the more or less irresponsible speculator. But now the time is ripe for the timid and over-conservative class, who hesitate to embark on an enterprise of any magnitude unless the skies are absolutely clear, to cast aside the bonds of fear and take on action.

While it would be folly to say that the skies are cloudless at the present time, it is reasonable to conclude that nothing serious can happen—nothing worse than we have already passed through in the past year. This will bring into the architects' offices a large number of buildings of all classes, the construction of which has been held in abeyance, in some cases, for more than a year. This, in turn, will create an increased demand for building materials, especially clay products.

That this last mentioned state of affairs may exist very shortly is not impossible. In fact, it is highly probable. Gradually increasing confidence and rapidly growing prosperity are displacing uncertainty, fear and doubt, and everywhere producers of burned clay wares are anticipat-

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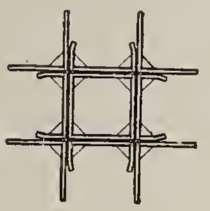

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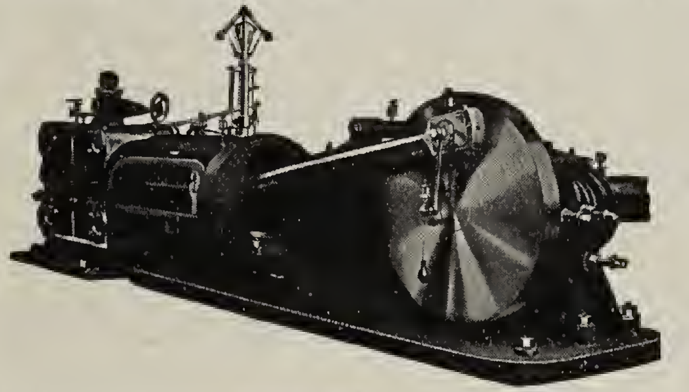

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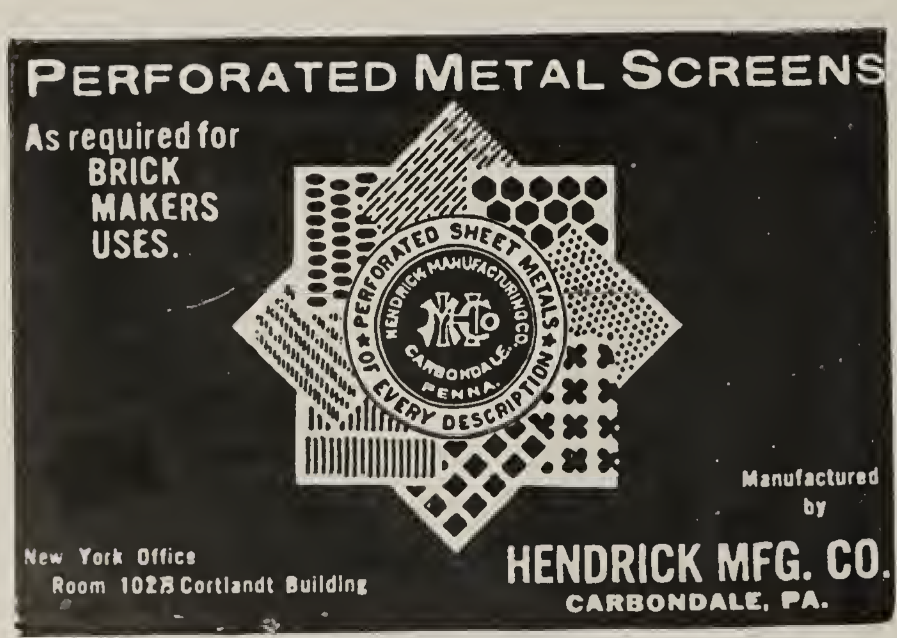
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ing a substantial fall trade or are looking forward to capacity business in the coming spring.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

CALIFORNIA

The California Brick Company, Decoto, Cal., is shipping a large quantity of brick to San Francisco.

President Heidecker of the Ione Fire Brick Company, San Francisco and Ione, Cal., has returned to headquarters after a long trip through Kansas, Oklahoma and Texas.

The Porterville Magnesite Company, which has begun operations at Porterville, Cal., has now secured offices in the Monadnock building, Market Street, San Francisco.

F. C. Davis, representing Gladding, McBean & Co., brick and terra-cotta manufacturers of San Francisco, has just returned from a short trip through Northern California.

Brick manufacturers and other members of the Oakland (Cal.) Contractors' Association went to San Jose on September 21 to attend the first annual banquet given by the Building Trades Employers' Association of Santa Clara county.

W. W. Dennis of the McNear Brick Agency, San Francisco, has just returned from a trip to Eureka and other Pacific Coast points. Eureka and the country immediately surrounding it were, until a few months ago, cut off from all railroad communication with the surrounding country, although it is a well settled and rich territory. Mr. Dennis believes that it is a section well worth the attention of brick manufacturers.

Indications of improved conditions in building and general business on the Pacific Coast are shown by the increasing number of orders being received at the Santa Monica plant of the Los Angeles Pressed Brick Company. At the present time this plant is turning out the highest production of the year and all departments are operating to full capacity. The company has remodeled the office at the plant and moved it nearer the heart of the city. Among some new machinery recently acquired is a steam shovel to facilitate the handling of clay.

DISTRICT OF COLUMBIA

Bids are soon to be opened in Washington, D. C., for the new $800,000 brick central power plant for the government. The plans for the building were drawn by the Supervising Architect of the Treasury.

ILLINOIS

The Alsey (Ill.) Brick and Tile Company is one of the few local concerns that have operated continuously during the present year. There does not seem to be any lack of orders to keep this plant busy.

The Monmouth (Ill.) Clay Manufacturing Company is the name of the new corporation which has succeeded the Monmouth Mining and Manufacturing Company, which concern went into bankruptcy some time ago. Those in charge of the plant have been instructed to discover what repairs are needed in the equipment and machinery and to order them made so that the factory may be reopened as soon as possible. The capital stock of the new company has been placed at $250,000.

INDIANA

The Colfax (Ind.) Drain Tile Company has filed articles of incorporation with a capital stock of $10,000. In addition to drain tile, this company will manufacture other clay products. The incorporators are Henry K. Lee, John M. Waugh and Jerry B. Casey.

IOWA

The Platt Company, Van Meter, Iowa, is installing a waste heat dryer which is to take the place of the steam drying system now in use.

The Redfield (Ia.) Brick and Tile Company recently purchased three and one-half acres of clay land immediately adjoining its present pit.

The Flint Paving Brick Company, of Des Moines, Ia., electrified its plant during last winter's shut-down, resulting in a substantial saving in the cost of operation.

C. R. Harrison, formerly with the Globe Machinery and Supply Company, Des Moines, Ia., has accepted a position with the Auburn Brick and Tile Company, of Auburn, Ia.

The State City Works at Knoxville, Ia., is constructing a new brick and hollow-tile building in which the machine room will be housed. This building will take the place of a smaller wooden structure which is now being used.

After having been tied up in bankruptcy proceedings since last fall, the property of the Marshalltown (Ia.) Sewer Pipe and Tile Company has been taken over by the bondholders and negotiations are now under way to dispose of the plant.

An unusual record is being made by the Carlisle (Ia.) Brick and Tile Company in burning a kiln for every working day in the week. There are seven kilns on the plant, and of these, six are burned every week. In the machine room the employes are through for the day when they have made a kiln of ware; in the yard, the crew has finished its day's work when a kiln has been emptied and one set. The burning never requires more than 72 hours, the average run being about 65 hours.

KANSAS

The Western Terra Cotta Company of Kansas City, Kansas, reports a good business in Kansas, Iowa, Oklahoma, Texas and Missouri and looks forward to much improvement next year. This company is now furnishing the terra cotta for a number of operations in the West.

F. C. Hadden, manager of the Salina (Kas.) Vitrified Brick Company, has announced plans for the making of a number of improvements at the company's plant in the near future. When these changes have been completed, in addition to its present line of brick, the company will manufacture hollow tile and hollow brick, also a rough-textured face-brick.

KENTUCKY

D. X. Murphy and Brother, architects, Louisville, Ky., have awarded the contract for the ten-story addition to the Tyler Hotel, to Bailey and Koerner, local general contractors. Face-brick and terra-cotta will be used in facing the building, according to specifications.

MASSACHUSETTS

Amaziah Mayo, for many years engaged in the manufacture of brick at Springfield, Mass., as a member of

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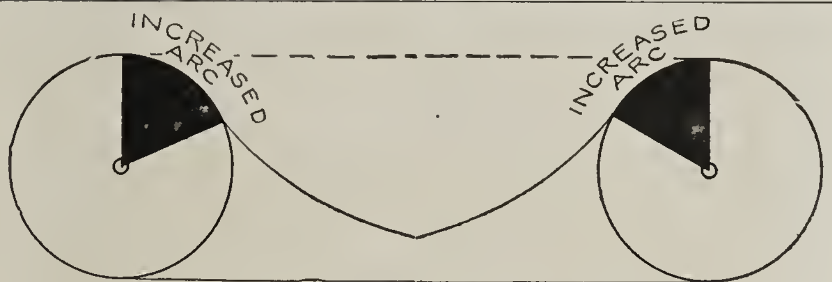

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Cling-Surface is a belt food that promotes long and economical belt life as well as constant high transmission efficiency, and offers about the best paying investment any belt owner can make. Order a package today for trial. Literature on request.

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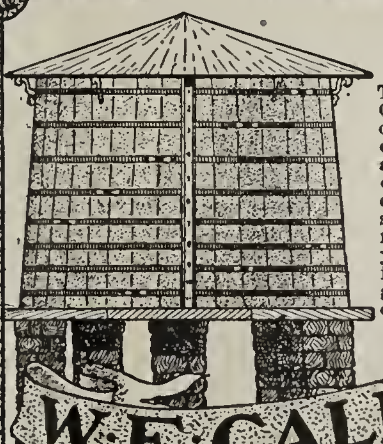


"The Tanks with a Reputation"

The unequalled serviceability of the CALDWELL CYPRESS TANK is because of its unequalled quality of materials and construction. We use only the "everlasting" cypress from the Louisiana swamps, that outwears and outlasts every other kind of tank wood, being practically as durable as steel. These tanks are hooped with such care and precision as to be absolutely tight, not for a season but for an indefinite number of years. Caldwell construction makes leaking impossible, and repairs unnecessary. Investigate the Caldwell tank and you will take no other. Ask for illustrated catalogue.

W. E. CALDWELL CO.
(Incorporated)
LOUISVILLE, KY.
TRADE PAPER ADV. AGENCY, N.Y. Nº 591

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

You Are Judged By the Samples You Send

Have you ever considered this fact, that your sample brick are your representatives, and that your company and its ability to furnish good material in good condition, are judged by the condition in which the sample is received?

It costs but little to pack your brick in Hinde & Dauch Corrugated Boxes, but you can be sure they will give thorough protection—no chipped edges or broken corners when these boxes are used. The sample will be a credit—not a disgrace.

Try it for yourself.

The Hinde & Dauch Paper Co., Sandusky, Ohio

Tycos PYROMETERS

Practical — Dependable — Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

Tycos
BASE METAL THERMO ELECTRIC PYROMETERS
Tycos PYROMETERS

Do you carry extra chains?

Have you insured your shovel output by carrying in stock extra lengths of Woodhouse Specials—all ready for the time when you will need them—Quick? You should—you know why!

Woodhouse Chain Works
Trenton, N. J.

the Hampden Brick Works, which later became the Springfield Brick Company, died at his home in Springfield recently at the age of sixty-nine. Mr. Mayo was a native of Springfield and one of its leading citizens and business men.

Philip Bergeron, who operates a brick plant at Amesbury, Mass., reports a successful season in spite of the long periods of damp weather which occurred during the summer. Mr. Bergeron has furnished a large amount of brick to Salem builders and recently received an order for 250,000 brick for a new factory building being erected in Newburyport. He has recently opened up new pits and will continue operating his plant until the weather conditions compel his closing down.

MICHIGAN

John S. Haggerty, a Detroit brick manufacturer, attended the Northwestern Road Congress held at Cedar Point, Ia., Oct. 4, 5 and 6, as a Michigan representative.

Brick will be used in the construction of the Detroit Federation of Labor building, the funds for which are now being solicited. Circulars are being distributed which read: "Buy a Brick for the Temple," and are sent to members of all labor unions in Michigan.

The Hancock Brick and Tile Company, Hancock, Mich., has secured the contract for furnishing the tile for the installation of a drainage system in Pittsford Township, Hillsdale county, Mich. The drain is to be about a mile and one-half long and is estimated to cost $3,000.

The Michigan Press Brick Company, Detroit, will make about 5,000,000 brick this year. The company sold more brick up to September 1st of this year than it did during the entire year of 1914. Most of its product is being used in residence work in and about Detroit.

On September 15 occurred the fall outing of the Detroit Builders' and Traders' Exchange, which this year was larger than ever before. An entertainment, taking the form of a course dinner, was provided by Charles H. Bryan, of Mercier, Bryan and Larkins.

Detroit brick dealers and manufacturers report a marked improvement in conditions since August 15 and that indications point to continued good business for some time to come. There is an unusually large amount of work on the books of building contractors for this season of the year, and a great deal of it calls for brick.

MINNESOTA

R. Chambers, L. Larson and R. Manbeck of Little Falls, Minn., have purchased a brick plant located near Nymore in that state, and will remodel and improve it.

A crew of men is at work overhauling the brick and tile plant at Tower Junction, Minn., so that it will be ready to resume operations next spring. The capacity of the plant is 150,000 brick or tile equivalent a day, but has not been running for some time. Fire-brick will also be manufactured when the plant reopens, as a good fire-clay is found near at hand.

MISSOURI

The Fayette (Mo.) Brick and Tile Company, recently incorporated, has elected Carl Jaeger president, L. W. Jacobs, treasurer and T. M. Crump, secretary and manager.

The Kansas City (Mo.) Faience and Terra Cotta Company's plant, which is now shut down, is being overhauled and will reopen in about sixty days. When this takes place it is said that a new management will have charge of the company's business.

The Hydraulic-Press Brick Company, Kansas City, Mo.,

SAY I SAW IT IN BRICK AND CLAY RECORD

reports the receipt of a large number of orders recently for its product to be used in buildings now under construction in Kansas and Missouri. The company feels that the outlook for a good business next year is very bright.

Three city blocks of brick paving set in "green" concrete with the sand cushion eliminated, were recently laid on Marcus avenue, St. Louis, being in the nature of an experiment. The work was done by T. E. Cavanaugh, a general contractor. It is said this method of laying paving brick will reduce the noise of traffic to a minimum and will withstand the variations of temperature better than methods that have been common in the past.

NEVADA

The Carson (Nev.) Brick and Tile Company furnished to the contractors of that city during July about 252,000 brick for various large jobs. This plant has begun the manufacture of another stock of brick, which, it is expected, will require about two months to complete, when in the neighborhood of 250,000 brick will be placed in the stock piles.

NEW YORK

Charles H. Merrick, a brick manufacturer of Syracuse, N. Y., died recently from an attack of pneumonia. Mr. Merrick, together with his father, Charles Merrick, were pioneer brickmakers in that city. The business will continue under the present name—C. H. Merrick—but will be under the management of Floyd V. Eseltine.

The Utica (N. Y.) Brick and Tile Company, which it seems has been taken by many parties to be an active concern, is no longer in existence, according to its former treasurer, H. C. Sholes. This company never conducted business in New York state although the greater portion of its stockholders resided there. Its plant was located near Palatka, Fla.

OHIO

The Moores-Coney Company reports a continued predominance of relatively small jobs around Cincinnati, with prospects for new business normal. The company has had a fair season, considering the handicaps imposed on building by weather conditions, and with the several good-sized jobs upon which deliveries are now being made, its plants have not been idle.

The formation of a company to manufacture paving brick and other clay products is now under way at Junction City, Ohio. Those most interested, and who will incorporate the new concern, are J. M. Clarke, L. H. Henry, B. L. Daugherty, William Bringardner, Wm. Klingler and A. E. Lidderale. It is reported that the capital stock of the company will be $75,000.

The Anders Shale Brick Company, Cincinnati, is loading several cars of brick a day at its plant for delivery to various points in the city where building operations are calling for immediate supplies. Improvements now being made at the plant hamper capacity somewhat, but the company is turning out a good volume of ware and is succeeding in delivering orders on time.

W. H. Willis, of the Shorey-Willis Brick Supply Company, Cincinnati, states that the active demand for common brick continues, the company's Cincinnati plant being operated to capacity. Brick are being shipped from this plant as far as Dayton and Oxford on contracts secured by the company in that vicinity.

The drilling of a well on the Stiers farm, adjoining the property of the National Fire Proofing Company at Haydenville, Ohio, is said to define unquestionably the oil belt in

SAY!

Are you using *Nugget Babbit?*

WELL — WHY NOT? —

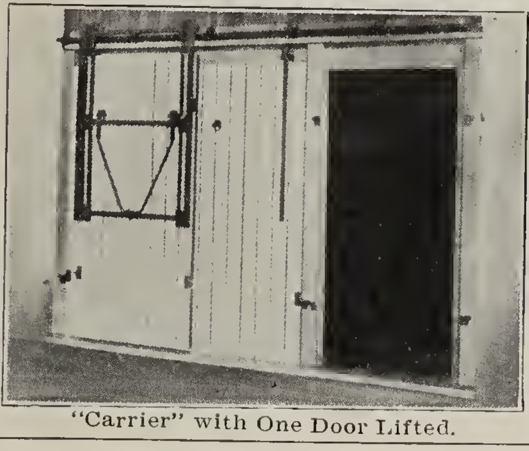
It's the best—its hardness insures great wear resistance—it stands up under heavy duty—over one hundred other plants stock it—and use it.

What's your address?

THE CLEVELAND ALLOYS CO.
CLEVELAND - - - - - OHIO

Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the


"Carrier" with One Door Lifted.

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

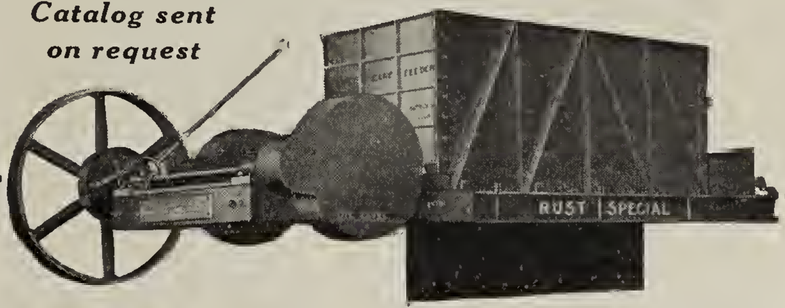
Dry Kiln Door Carrier Co.
Indianapolis, Indiana

It Improves Your Product—

Because it feeds the clay to the pugmill more evenly than is possible by hand, prevents it from clogging, and insures a perfect mix. The RUST SPECIAL—the BEST in Clay Feeders—does this and more. Ask us about it.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Catalog sent on request



THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

SAY I SAW IT IN BRICK AND CLAY RECORD

FALSE RUMORS

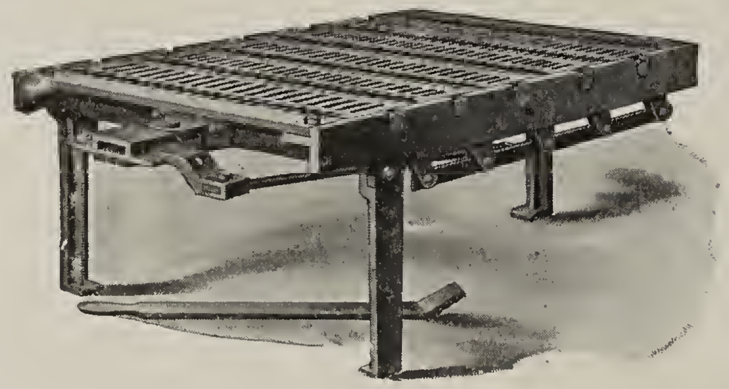
CONTRARY to current rumors, exceptional demands for military powders do not affect our productions of Blasting Powder, Dynamite and Sporting Powder.

Extensive plants, large stocks of materials, ample storage and shipping facilities enable us to accept and promptly complete contracts for products of DU PONT standard.

Specify DU PONT and be assured of prompt shipments of explosives of known efficiency.

E. I. du Pont de Nemours & Company
Powder Makers Since 1802
Wilmington, Delaware

THE CANTON KILN GRATE



FOR THE PLANT THAT COUNTS THE COST

It enables that plant to buy fewer carloads of coal, and to pay less for the carloads that it does buy. For—the Canton Kiln Grate burns less coal; it does it thoroughly and economically, and it can burn a low grade of coal—to accomplish the same results that you are getting (or want to get) now.

Bulletin B contains complete information on use of grate in kilns.

THE CANTON GRATE CO.
1706 Woodland Ave. CANTON, OHIO

that region. It is estimated that the new well will produce one hundred barrels of oil a day, and will prove to be one of the best in the field. It is also certain that the National Fire Proofing Company will resume drilling operations.

It is reported from Youngstown, Ohio, that J. W. Rowlands, treasurer of the Bessemer Limestone Company, of Bessemer, Pa., returned recently from a trip to Montreal, Que., where he secured a contract calling for the delivery of 2,500,000 paving brick.

H. Suer and Sons, brick manufacturers of Cincinnati, report more active business of late than at any time during the summer. The Suer plant is turning out about 50,000 brick a day, mostly for delivery in the city, and will probably maintain that output until cold weather sets in.

With the co-operation of the Ohio State Highway Commission and the county authorities, the remaining five and one-half miles of unpaved road on the highway between Cleveland and Akron, Ohio, will be laid with brick before another summer, it is announced. Contracts have already been let for part of the paving, and the highway commission will be asked to do its part in getting about three miles—all that is left—paved as soon as possible. When the work is completed, it is understood that many Cleveland merchants will make regular deliveries to Akron, in spite of the considerable distance, demonstrating strikingly the commercial value of good rural highways.

The announcement of awards on various parts of the work involved in the new Hamilton (Ohio) county courthouse has finally been made. The largest contract, as far as brick and clay products are concerned, was that for the brick, which went to the Blair Brick Company, of Cincinnati. The order calls for about 4,000,000 commons, which will be manufactured by the company at its East End plant and delivered by river to a point convenient for hauling to the job. The hollow brick will be furnished by William H. Geis, also of Cincinnati, while the terra-cotta will be supplied by the Federal Terra Cotta Company. A brick stack will be built by the H. R. Heinecke Company, so it is apparent that burned clay will be very prominent in the construction of this building.

OKLAHOMA

The Cleveland (Okla.) Brick Company has been incorporated with a capital stock of $75,000 by G. W. Sutton, J. B. Myers, I. D. Gould and Howard Hannah, of Cleveland, and D. D. Mickleson of Tulsa, Okla.

ONTARIO

At a meeting of the Clayworkers' Safety Association, held Sept. 16, Charles A. Millar, past president of the Canadian National Clay Products Association, was appointed inspector of clay plants in connection with the carrying on of the Workmen's Compensation Act for the Province of Ontario.

A complimentary dinner was recently given Joseph Keele, of the Canadian Geological Survey, by the clayworkers in Toronto. The occasion marked Mr. Keele's leaving Toronto to continue his testing work on clays and shales in the new Government Testing Laboratory at Ottawa, where one of the most complete equipments in America is maintained for the purpose noted.

OREGON

Alexander Batley, who recently purchased the plant and property of the Eugene Brick Company, located three miles west of Eugene, Ore., had a commendable exhibit of fire-

SAY I SAW IT IN BRICK AND CLAY RECORD

brick and other clay products at the Lane County (Ore.) fair during the later part of September.

PENNSYLVANIA

The plant of the Entress Brick Company, Pittsburgh, Pa., recently suffered considerable damage from an explosion.

H. M. Lippincott, a brick manufacturer of Philadelphia, Pa., was in San Francisco recently visiting various clayworking plants and viewing the exposition. Mr. Lippincott is also an author of national fame.

The Kittanning Brick and Fire Clay Company, of Pittsburgh, Pa., was recently awarded the contract for supplying the brick to be used in the construction of the new Junior High School building at State and East Second streets, Franklin, Pa.

An unsuccessful attempt was recently made by four masked highwaymen to rob Frank Gery, paymaster of the Glen-Gery Brick Company, of Shoemakersville, Pa., while he was on his way to the plant with a payroll of several thousand dollars. Mr. Gery was in his automobile, and as one of the quartet pointed a revolver at him, he put on full speed and managed to get away.

VIRGINIA

The plant of the American Clay Product Company, Roanoke, Va., which was destroyed by fire a few months ago, will be rebuilt at once, if the present plans in this direction are carried out. The work of cleaning up the ruins has been started, and it will not be long before the new plant will be in the course of construction.

WASHINGTON

F. T. Crowe & Co. of Seattle, Wash., agents in the Pacific Northwest for the Ludowici-Celadon Company of Chicago, have secured a contract for the roofing tile for the residence of John T. Hefferman. The company is also supplying the face-brick on this building.

WEST VIRGINIA

The plant and equipment of the Adamantine Clay Products company, located at North Mountain, W. Va., were destroyed recently by fire caused by sparks from a passing locomotive. There was no fire protection at the plant and the buildings were mostly of frame construction. Practically all of the machinery, and the greater part of the books and papers in the office, were destroyed. The loss is estimated at $100,000 with insurance amounting to $37,000.

Pottery Notes

A Resume of the Activities of the Potters and Some Mention of their Plans for the Future.

By agreeing to thirty-three of the forty-eight direct and counter propositions presented to the joint wage conference committee representing the United States Potters' Association and the National Brotherhood of Operative Potters, which held its sessions at the Hotel Chalfonte at Atlantic City recently, the conference committee concluded its deliberations in less than three days.

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —**the dependable brand.**

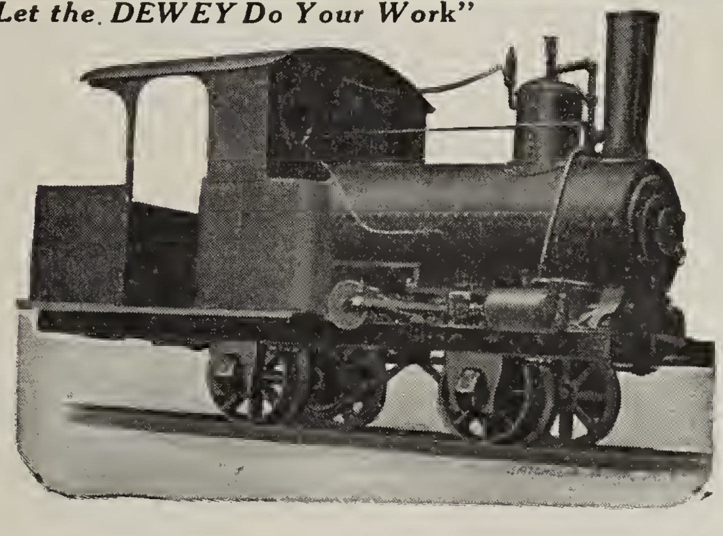
Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York

Chicago, Ill. East Liverpool, O. St. Louis, Mo. Kansas City, Mo. New Orleans, La. Philadelphia, Pa. Boston, Mass.

We carry a complete line of high grade chemicals for the clay industry

"Let the DEWEY Do Your Work"



The Boiler of the DEWEY

The Borden Brick & Tile Co., Goldsboro, N. C., is using a DEWEY locomotive. It discarded the mule-driven car and declares it not only got an increased efficiency but reduced the cost of hauling.

This concern hauls eighteen cubic yards of clay to a load on a trip of one and a half miles.

How many mules would it take to do this same thing and how long would it take them to do it?

It is our own special design. It has unusually large capacity, is a quick steamer, and is economical in fuel consumption.

These three characteristics have made the DEWEY especially adapted to clay pit work.

Strong, Safe, Long-Lived

The DEWEY boiler is designed to reduce to a minimum the numerous angles and corners and pockets which serve as collecting places for mud and scale—distressing features about every standard locomotive boiler.

The DEWEY boiler, therefore, is stronger, safer and longer-lived and does BETTER work than the regular types.

The DEWEY sells for several hundred dollars less than any of the standard type locomotives of the same size and weight.............. **$1200**

DEWEY BROS.
Goldsboro, N.C.

SAY I SAW IT IN BRICK AND CLAY RECORD

Flower Pots—
A Profitable Bi-Product

No matter what the nature of your clayworking plant, it is no doubt possible for you to add Flower Pot manufacturing with very little additional outlay.

Often you wish you had some way to keep Jim Smith or Jack Jones busy all the time, don't you? Well, here's the solution: put in a

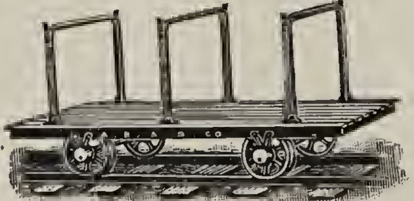
Baird
Flower Pot Machine

Easy to operate, absolutely accurate. Makes any regular size pot desired.

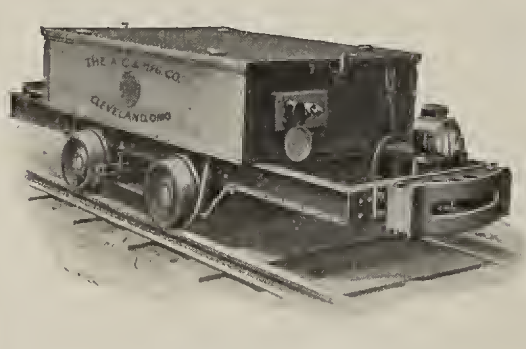
Send us a sample of your clay and let us show you what our machine will do.

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

No. 217-E. Side Dump Car Equipped with Motor



No. 126 Double Deck Dryer Car



Storage Battery Locomotive for general use.

REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

ATLAS
High Efficiency
Cars and
Electric Locomotives

will meet your requirements. Let us send you catalogue and quote prices.

THE ATLAS CAR & MFG. CO.
Dept.
1287 Marquette Road, Cleveland, Ohio

All of the agreements embodied in the "Astor" agreement have been made a co-part of the "Chalfonte" or last agreement signed by these committees. While no wage advances were submitted, these were asked for in the Brotherhood convention, but were voted down. The workers presented thirty-four propositions to the manufacturers at this meeting, and the latter presented fourteen counter propositions. Both parties were successful in having a part of their wishes granted.

The improvement in orders with all general ware potteries in the western district during the past two weeks has been so marked, that it is believed operations will continue throughout the balance of the year at full capacity. It is also pointed out that in at least two instances the increase in business has been such that additional kiln capacity is required, and that these kilns will be erected at once. The Albright China Company, of Carrollton, Ohio, has announced its intention to erect a new battery of glost and bisque kilns, while the Mt. Clemens Pottery Company, of Mt. Clemens, Mich., will also erect two additional kilns.

The Colonial Pottery Company, at East Liverpool, Ohio, has started the manufacture of vitreous hotel ware, the firm being the only one in that district manufacturing that line. This company has also closed a contract for furnishing all the hotel ware to be used in the New York State hospitals, having been the successful bidder for this business for the past three years.

A noteworthy feature of the domestic pottery trade is the promptness with which orders are now being filled by the manufacturers. This is due to the fact that large orders are not general, but small orders are numerous. Judging from the way in which business is being received, the manufacturers believe there will be a rush on the part of buyers later in the season, which will eventually crowd the plants.

Charles L. Hart, formerly assistant secretary of the Potters' Co-operative Pottery Company, of East Liverpool, Ohio, has been made general manager of the Ohio China Company's plant at East Palestine, Ohio, succeeding William E. McConnell, who has gone with the Summit China Company, at Akron. The vacancy created by the resignation by Mr. Hart at East Liverpool has not been filled.

In sleepy little Bedford Village, not far from New York City, a pottery kiln is maintained by Mrs. Clarence C. Rice—a well-known New York society woman. Mrs. Rice is an enthusiast for artistic pottery, shaping the clay herself and holding exhibitions of her work in Boston, New York and other large cities. The Boston Museum of Fine Arts recently bought some of her work.

It is not likely that the pottery at Toronto, Ohio, formerly owned by the American China Company, will be taken over by the Steubenville (Ohio) Pottery Company, much before the end of the year. Citizens of Toronto have raised a fund of $5,000 to give to the Steubenville Company, this being the difference in the price offered for the property and what the owners ask.

The Perrysville (Ohio) Pottery Company, which for a long time has been inactive owing to financial troubles, has again resumed work under the management of the owner, S. Moltrup, and is doing a good business. Mr. Moltrup purchased the entire plant including the ground, buildings and personal property from R. E. Hutchison for $12,000.

George F. Brunt, formerly at the head of the Brunt Porcelain Works, East Liverpool, Ohio, and who, sev-

(*Continued on page* 532)

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Save Your Dry Cars

You are using from two hundred to two thousand metal cars in the tunnel dryers. These cars are being bathed constantly in an atmosphere charged with damp, acid gases at high temperature. The result is that the cars deteriorate and

Rust

You see it on every car; it's from one-sixteenth to one-eighth of an inch thick. It can be scraped off in showers. It is caused by the acid and moisture in the hot drying gases. This rust makes the decks and cars worthless in a few years.

Carbide Paint

covers up the metal. It prevents rusting and consequent deterioration—because it is acid, gas, heat and moisture proof. It costs but a few cents to paint a car to make the car everlasting. Try it out on your plant. It will save thousands of dollars.

Place your trial order—now.

E. R. STOWELL

ODEN MICH.

Down in the Pit

Where the big shovel is loading cars —half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive light, speedy, powerful— to yank the loads out—the empties in.

Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Paving Contractors

who use Lehigh Cement for base, filler and grout on all brick paving work

Know Exactly What the Results Will Be

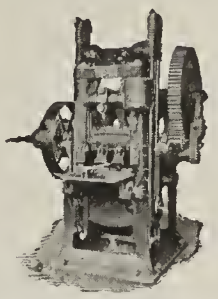
They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.

LEHIGH
CEMENT

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

We Manufacture



Buckets, Kiln Bands, Pressed Steel Brick Pallets. Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.

Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. **The Lakewood Line is Built to Last.**

Ask for Catalog No. 11

Lakewood Engineering Co.

Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD

Marion
GASOLINE SHOVELS

GOING to work is a whole lot more profitable to you than *getting ready* to go to work! It's a safe bet that when you want clay you *want it right then*, and when you've finished for the day you want to stop and either let the crew go home or turn to something else.

That's where the beauty of the new Marion Gasoline Shovel comes in. It's a mighty digger, and, size for size, will do all the things a steam shovel will; but a single turn or two of the starting crank sets it going, and stopping it is merely a matter of throwing out the spark. This new Marion is

READY When *YOU* Are; Bigger Than the Toughest Digging; Runs at Low Cost; Needs No Licensed Engineer

Owning and operating a Marion Gasoline Shovel means that *you can really do your work* SUCCESSFULLY with *only one man in the cab.* You want to remember THAT—for he has only one pair of eyes, and if he's going to do a good job, he must keep them on the work out in front.

Write us today for full information about Marion Gasoline Shovels, mentioning whatever facts about your work will help us make our reply *more really useful* to you. Special Catalog 951 will be mailed upon request.

THE MARION STEAM SHOVEL COMPANY
Established 1884
Manufacturers of Excavating Machinery of Every Description
Station A, MARION, OHIO
Atlanta Chicago New York San Francisco Seattle

60

eral years ago, took over the Worthington pottery north of Columbus, Ohio, to manufacture porcelain, will hereafter manufacture a floor and wall tile, in addition to his other lines.

The Guernsey Earthenware Company, of Cambridge, Ohio, has begun the manufacture of vitreous cooking ware, this being a new line for this concern which, for many years, has been manufacturing a cooking ware line from domestic clays. This is the second pottery to take on the manufacture of vitreous china cooking ware within the past few years.

Some interesting statistics on the pottery trade of nearby British possessions have just been made public by American consular representatives in the Bahamas, the Bermudas and Trinidad. The United States is shown to be the largest exporter of pottery wares to these possessions.

The Marblehead (Mass.) Pottery, which for many years has been owned and operated by Herbert A. Hall, has been sold and is now being managed by Arthur Baggs.

The Trenton (N. J.) Potteries Company will open a new display room shortly at 9 Tremont Place, Boston, Mass. George Stevens, formerly of the firm of Bunting and Stevens, has been selected as manager.

The Cartwright Pottery Company, of East Liverpool, Ohio, will put a new plain shape, made from a new body and glaze, on the market on or about November 1.

Wallace C. Adams of Deerfield, Mass., has purchased the potter's shop in that city formerly operated by Chauncey Thomas.

Sodium Salts in Casting Clays

In Technologic Paper No. 51 just issued by the Bureau of Standards, Department of Commerce, the results of some work involving the addition of small quantities of sodium carbonate and sodium silicate to clay suspensions are published. Clays, mixed with water, may be considered to consist of a system of fine particles varying from comparatively coarse to very fine grains, 0.003 mm. and less in diameter. It is a curious fact that these fine particles are very sensitive to the influence of small quantities of alkalies, salts and acids, and hence the properties of the clays as a whole are affected to an important degree by such additions. Alkalies tend to break down the grains into still finer particles and to hold them in suspension. At the same time the fluidity of the system is increased so that a separation is possible between the particles capable of greatest dispersion (the clay substance proper) and the coarse particles which comprise the principal impurities. A method of purifying clays is thus suggested. Acids and salts act in the opposite sense, tending to coagulate the particles and to precipitate them. In the casting process employed in the manufacture of sanitary ware and other clay products, the effect of the alkalies consists essentially in reducing the water content and with it the drying shrinkage, which is essential in preventing the cracking of the ware.

The characteristic effect of the alkalies upon different American clays was studied from several standpoints, particularly with reference to the viscosity of the clay suspensions, the absorption of the reagents, the strength of the treated mixture in the dried state, and the influence of time. The effect of different clays upon each other was also studied.

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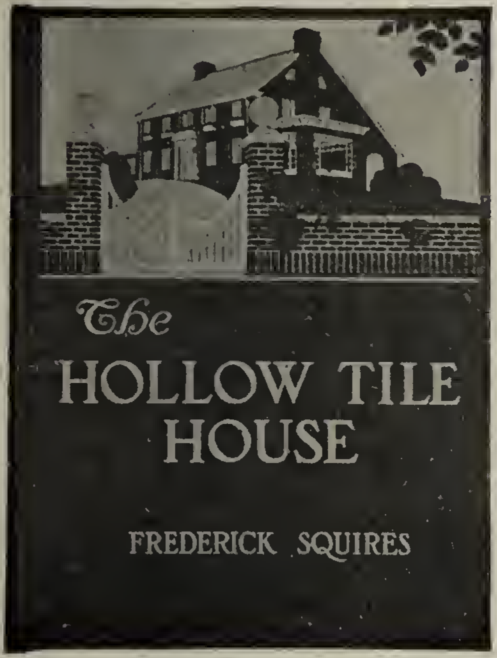

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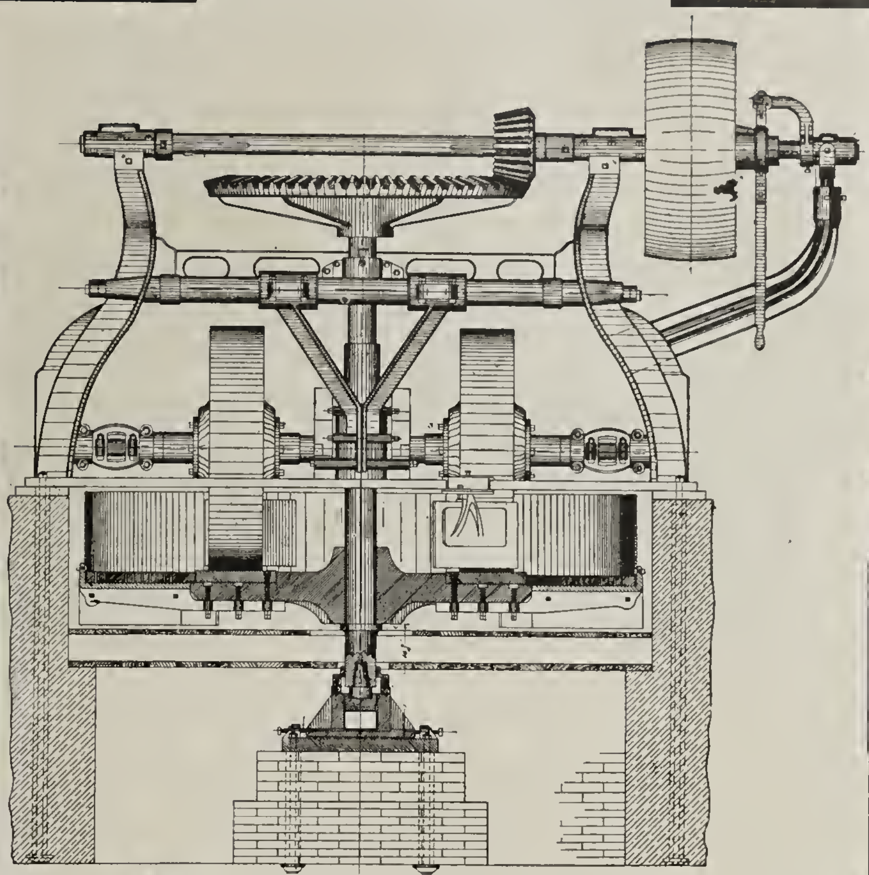

Stevenson's Ten-Foot Dry Pan

¶ The announcement made in the May fourth issue of "Brick and Clay Record" has caused a profound impression in the trade. Those who have had a chance to investigate have unanimously agreed that it's the

"Last Word" in Dry Pans

¶ This pan is built for heavy duty and it will give a greater daily capacity than any similar size pan on the market.

¶ We know, because we have built pans for years and we have an experience in this respect that is unexcelled.

¶ Get in touch with us **now** and let us prove that here's a profitable investment for you to make.

¶ **Refer to page 871, May fourth issue "Brick and Clay Record" and read the description of this new ten foot dry pan.**

THE STEVENSON COMPANY
WELLSVILLE, OHIO

¶ Also ask us about our latest Tile Press that makes tile from 3 to 36-inch. It's a wonder.

"In the Heart of the Clay Industry"

YOUR GOOD WILL

— it is the biggest asset
in our business today

The Hook System installed in old or new Kilns has been and is today a success —because of our determination to satisfy each purchaser of a system— inherently correct— by designing, fitting and teaching thoroughly, according to local conditions and requirements. We can convince you of the merit and economy of our system. Say you're interested—there's no obligation on your part.

The Hook Patent Kiln Co.
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Viscosity of Porcelain Bodies High in Feldspar

In the firing of porcelain the deformation of the pieces due to softening is a serious source of loss, which fact led the Bureau of Standards, of the Department of Commerce, to conduct a series of tests for the purpose of obtaining data for selecting compositions showing the least deformation at the highest kiln temperatures. It was thought desirable to measure the degree of softening of a series of porcelain mixtures by molding them in the form of bars with enlarged ends, similar in shape to the halves of the well known cement briquettes, and subjecting them to a tension of 14.5 pounds per square inch at different temperatures by means of suitable fire-clay weights. The degree of softening was determined by measuring the distance between two marks, four inches apart. The porcelains were first fired, under no tension, to a certain temperature and then, under tension, carried to a series of temperatures between 1275° and 1380° C.

Higher contents of feldspar reduce softening of low compositions markedly. In a 45 per cent kaolin-clay body, 35 and 40 per cent of feldspar are most effective in increasing the softening, but higher percentages again decrease it. Still higher clay contents cause the softening effect of feldspar to diminish decidedly. Flint, in high feldspar bodies, does not seem to be an important factor in governing the softening. For high temperature porcelains high clay content is essential. High clay bodies having feldspar as the only other constituent show very great rigidity.

The function of viscosity is not a continuous one. After attaining a certain degree of softening a well defined rigid state ensues which does not tend to approach further softening until a temperature of 1345° has been reached. Beyond this point the second stage of decided softening is entered upon. Although showing the same degree of viscosity at 1388°, bodies may be divided into several classes, according to the degree of softening observed between 1300-1345°. Within this temperature range greatest rigidity was shown by the following compositions:

% Kaolin and Clay	% Feldspar	% Flint
40	30	30
45	35	20
45	50	5
50	30	20
50	50	..

Copies of Technologic Paper No. 50, describing the tests made and giving the results thereof, may be had upon application to the Bureau of Standards at Washington.

Unusual Uses for Shale

The United States Geological Survey has issued a bulletin on the production of mineral paints in 1914, and in it there is a paragraph relative to the use that is made of shale, other than for brickmaking. Shale for use in pigments and as filler in the manufacture of oilcloth and linoleum were produced in 1914 in Pennsylvania, New York, Georgia and Indiana, these states being named in the order of their producing importance. Pennsylvania produced about 87 per cent of the total.

Shales used in the paint trades may be divided into three classes—black, yellow and red shales. Black shale is used to some extent in paint for buildings, but chiefly in the manufacture of a black filler for paint used on iron work. Ground yellow shales have been utilized in the manufacture of paint, but are principally used in the manufacture of oilcloth and linoleum. They are considerably lighter in color than the ochers and contain a much lower percentage of hydrous iron oxide.

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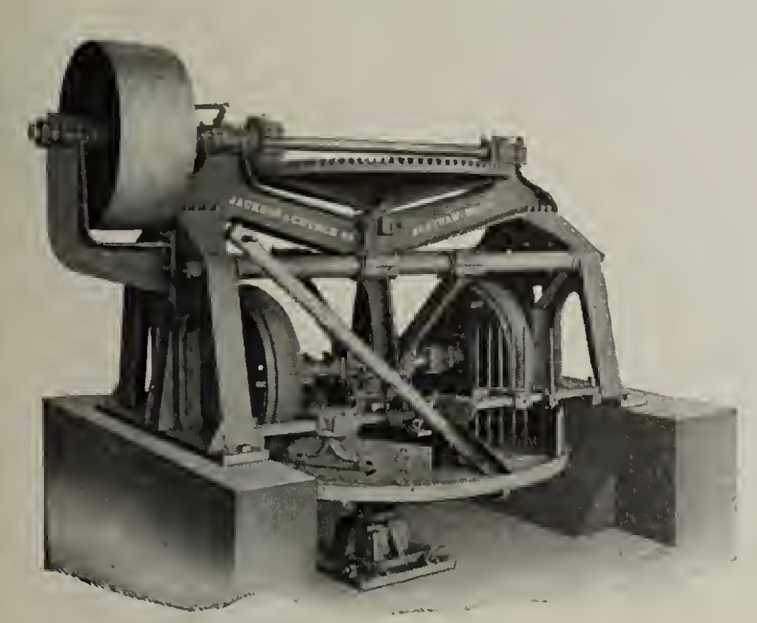

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Wet or Dry

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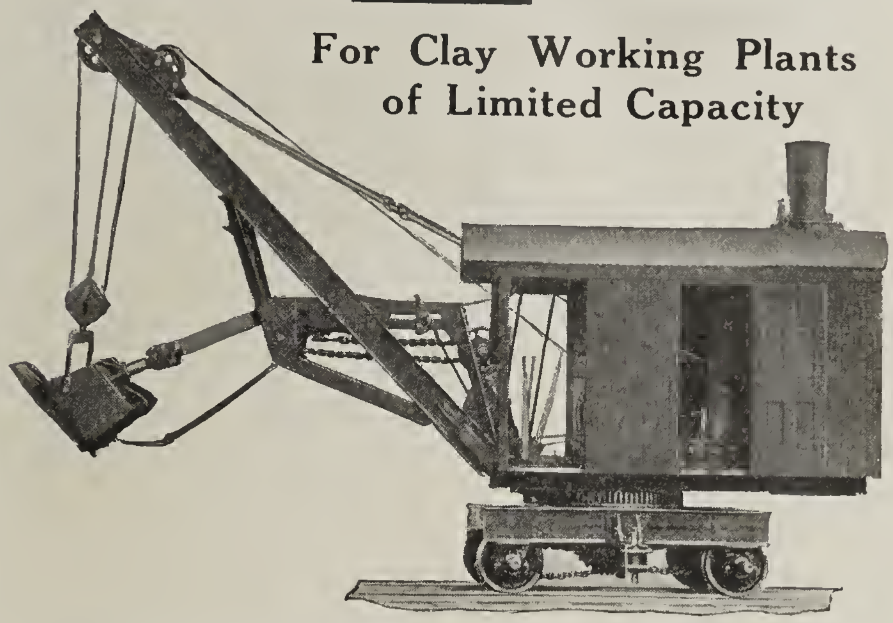
Type AO—A Smaller Thew Shovel

For Clay Working Plants of Limited Capacity



MORE than 400 Thew Shovels are in use in clayworking plants, a fact which conclusively proves the adaptability of these shovels to this industry.

Until recently the Type O Shovel, weighing 18 tons, was the smallest and most generally used machine and the range of sizes adapted for clayworking varied from that up to Type 4, weighing 55 tons.

The success invariably experienced by clayworkers with Thew Shovels proved their design and operating features to be ideal, and emphasized the need of a somewhat smaller shovel for the plant with more limited capacity.

The Type AO Thew Steam Shovel was designed to meet this demand, and it affords the owners of these plants an economical advantage, equal to that enjoyed by their larger competitors.

The Type AO Steam Shovel is small, light, simple in operation, readily portable, and ample in every way for the requirements of the modern clayworking industry.

Weight, 15 tons; dipper 5/8 cu. yds. capacity; hoisting engines, 5x6 inches; swinging and crowding engines, 4x5 inches; boiler built to Massachusetts specifications for pressure up to 150 pounds.

Owners of clay plants who heretofore considered their plants not large enough to justify a steam shovel will be interested by obtaining additional information about this Type AO Thew.

SIGN and MAIL or USE FOR MEMORANDUM

The Thew Automatic Shovel Co., Lorain, O.

Send us at once literature about the Thew Type AO Shovel advertised in "Brick and Clay Record."

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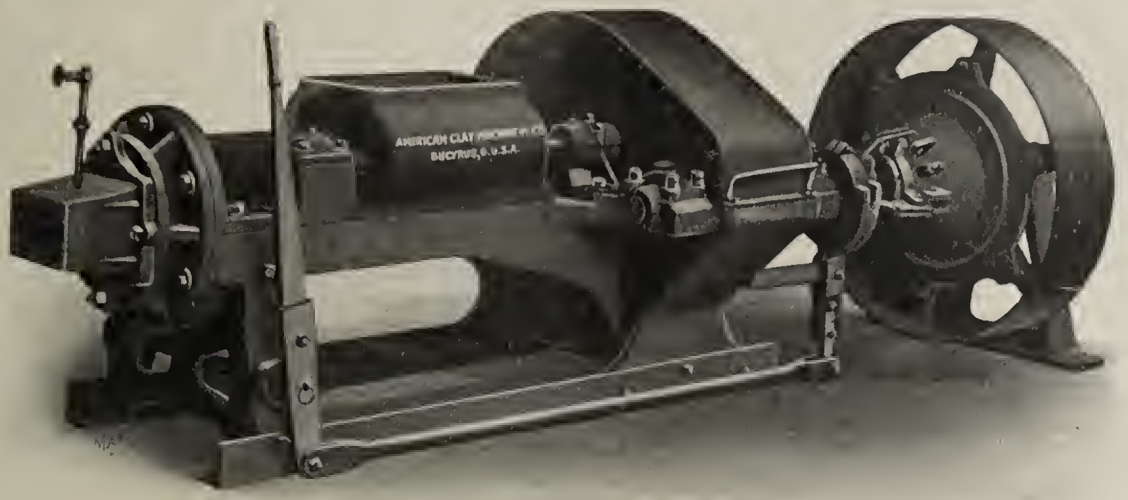

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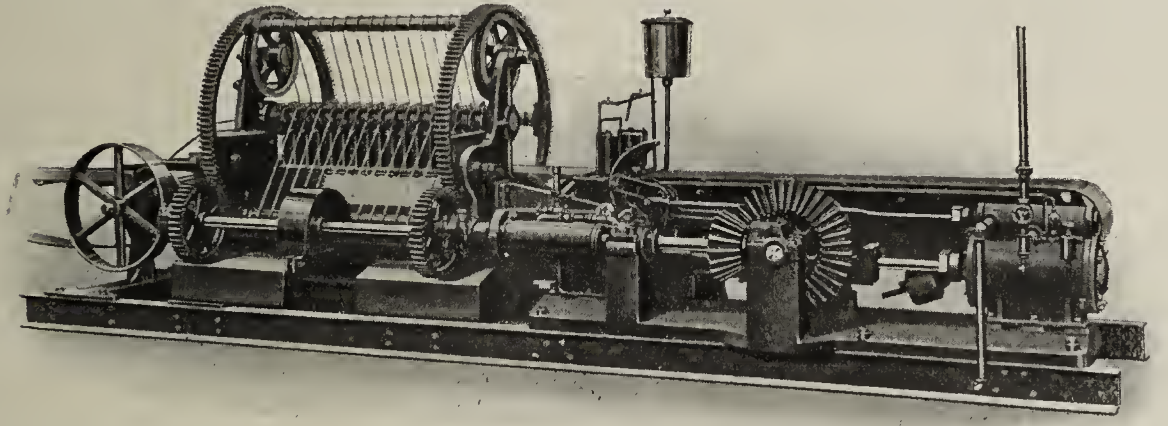
The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.



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Schofield-Burkett Cons. Co.
Stevenson Co., The.
Weller Mfg. Co.

Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Stevenson Co.

Silent Chain Drives.
Link-Belt Co.

Soft Mud Brick Machines.
American Clay Machy. Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Wellington Machine Co.

Steamers (Clay).
American Clay Machy. Co.
Schaffer Eng. & Eq. Co.

Steam Separators.
Canton Grate Co.

Steam Shovels.
American Clay Machy. Co.
Marion Steam Shovel Co.
Thew Auto Shovel Co.

Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Wellington Machine Co.

Steel Pallets.
Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

Ties (Steel) and Tie Plates.
Cincinnati Frog & Switch Co.

Steel Towers.
Caldwell Co., W. E.

Supplies.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Weller Mfg. Co.
Wellington Machine Co.

Tanks.
Caldwell Co., W. E.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.

Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Wallace Mfg. Co.
Wellington Machine Co.

Time Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Traffic Counselor.
Preetorius, I.

Tramways.
Ambursen Co.

Unloading Devices for Pans.
American Clay Machy. Co.
Bonnot Co.
Clearfield Machine Shops.

Watchman's Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Water Tanks.
Caldwell Co., W. E.

Wheelbarrows.
(See Barrows and Trucks.)

Winding Drums.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, F. & S. Co.
Weller Mfg. Co.

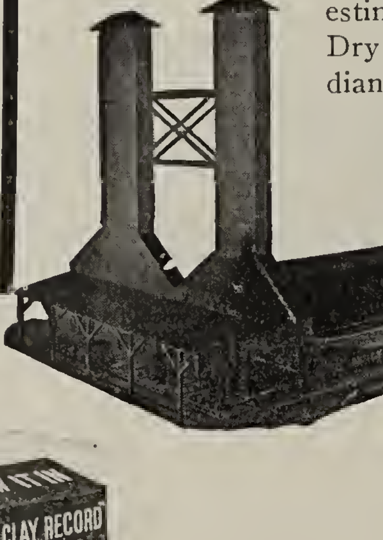
Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

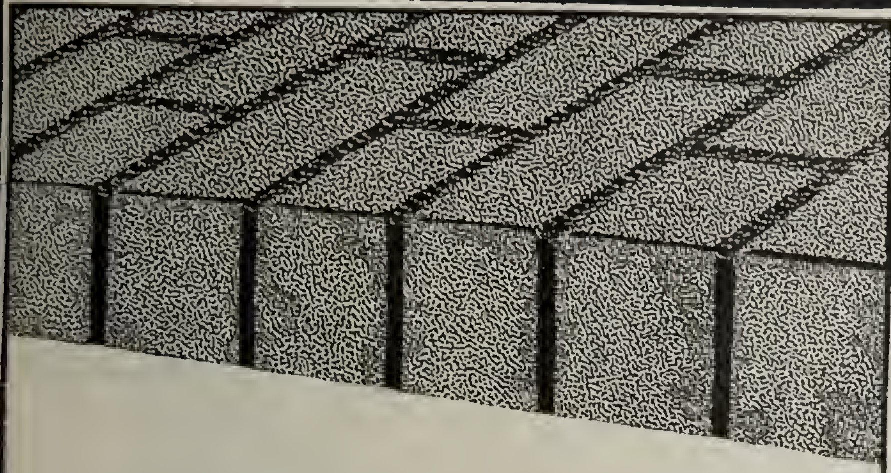
Look Out for Winter!

DON'T let freezing temperature catch you again with the same troublesome old heating apparatus in your drier! Even if you're not ready for a complete new drying plant, let us figure with you *now* on installing

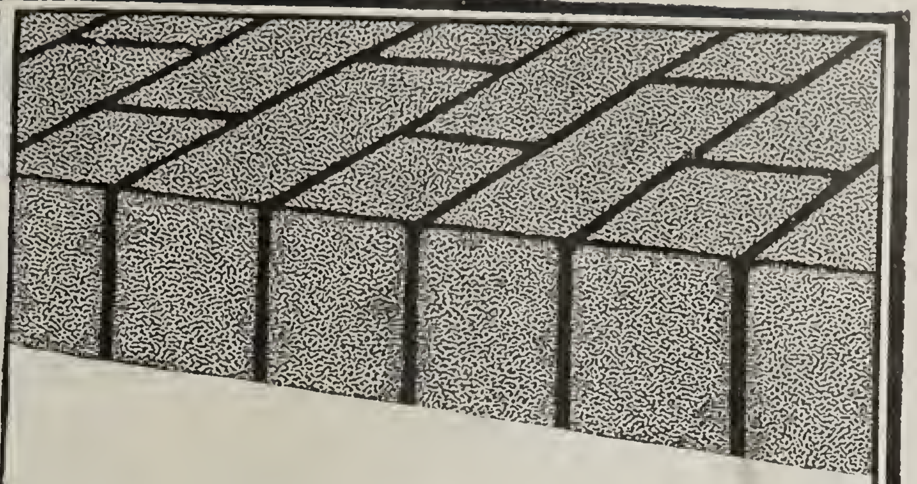
The Standard Heating System

in your present drier. This system is *self-draining*. It doesn't need special attention, no matter how cold the weather gets. All expansion pipes are *horizontal*. There is no drop at either end of the system to pocket the condensation and stir up trouble. Write for an estimate. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.





In Cold Weather
the blocks contract, the joints widen, the pitch sinks and keeps the seal intact.



In Hot Weather
the blocks expand, the joints grow narrow, the pitch squeezes upward. The seal is intact.

Barrett's PAVING PITCH

Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, especially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

Booklets on request

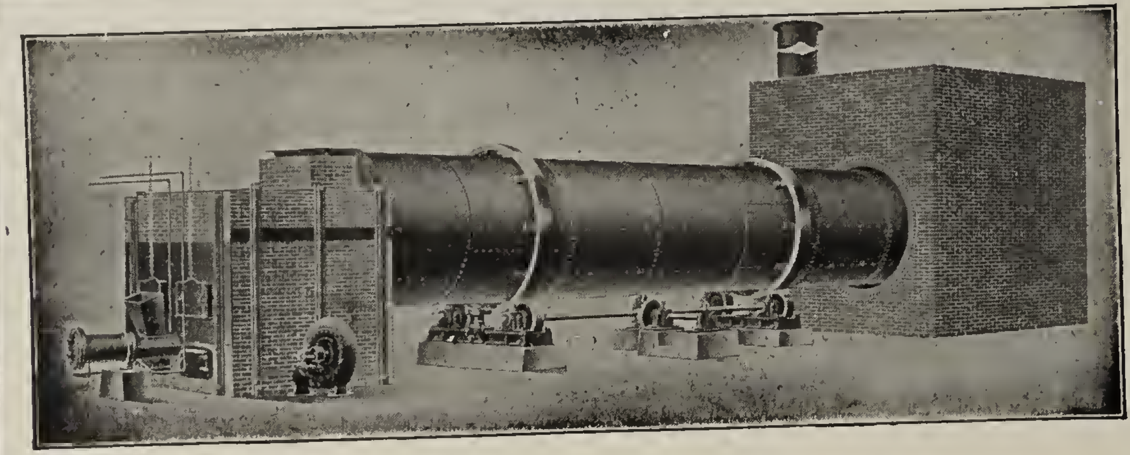
BARRETT MANUFACTURING COMPANY
New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N.B. Halifax, N.S. Sydney, N.S.

THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



ROTARY CLAY DRYER

DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

Style No. 12

THE OHIO GALVANIZING & MFG. CO.
NILES, OHIO
PALLET NO. 12

A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 500 1000	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 500 1000	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 500 1000	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

SAY "I SAW IT IN" BRICK AND CLAY RECORD

8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

Guaranteed Gears

IT IS impossible to guarantee a definite life in miles or term of years, because we have no control over the conditions upon which the life of a gear depends after installation, such as lubrication, protection from grit, correct alignment and centering of shafts, but

We guarantee the life of Nuttall Heat Treated Steel Gearing to exceed the life of untreated, medium carbon cast steel gearing in identical service, as shown by the following ratios:

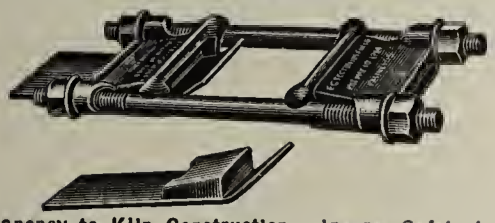
BASIS OF COMPARISON		COMPARISON	
		NS—Nuttall Standard	125
		SS—Special Service	250
CS—STANDARD CAST STEEL	100	BP—Special Process	350
		CHS—Case Hardened Cast Steel	450
		CHF—Case Hardened Forged Steel	500

and will replace any gears not making good this guarantee, subject to an adjustment based upon the percentage of actual to guaranteed life.

Send for "The Nuttall Red Book" on Heat Treated Gearing

Nuttall - - - Pittsburgh

Tecktonius Kiln Band Fastener



Gives Permanency to Kiln Construction. Insures Safety to Kiln Contents.

WROUGHT IRON BANDS

Wall and Crown Guides
Crown Covers and Ventilators

Write for
Discount and Net Prices

E. C. Tecktonius Mfg. Co.
Racine Junction, Wis., U. S. A.

Up-and-Down Draft Tecktonius-Vogt Round Kiln

THE STANDARD RATTLER FOR THE TESTING OF PAVING BRICK

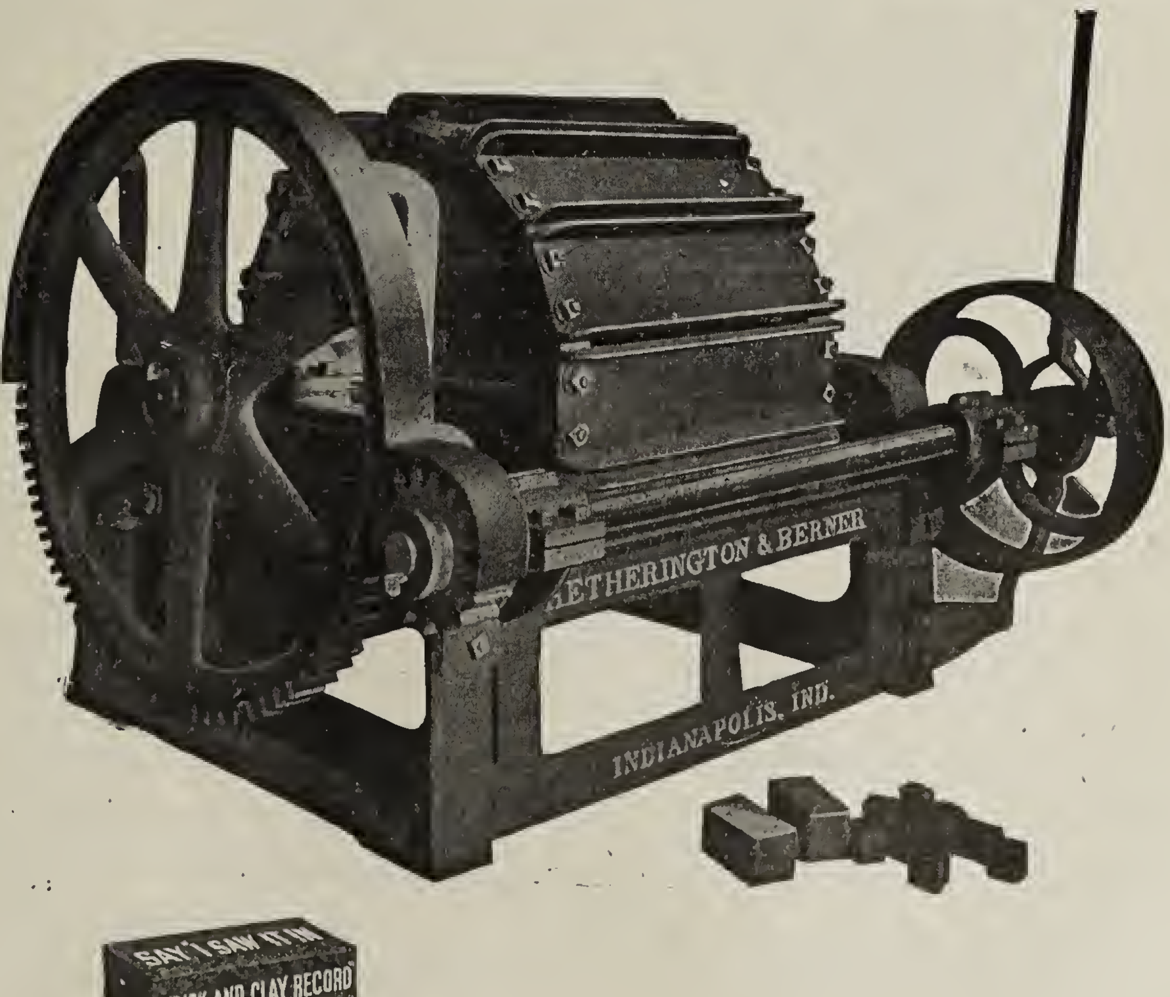
As we now build this machine it embodies all of the

LATEST IMPROVEMENTS

and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

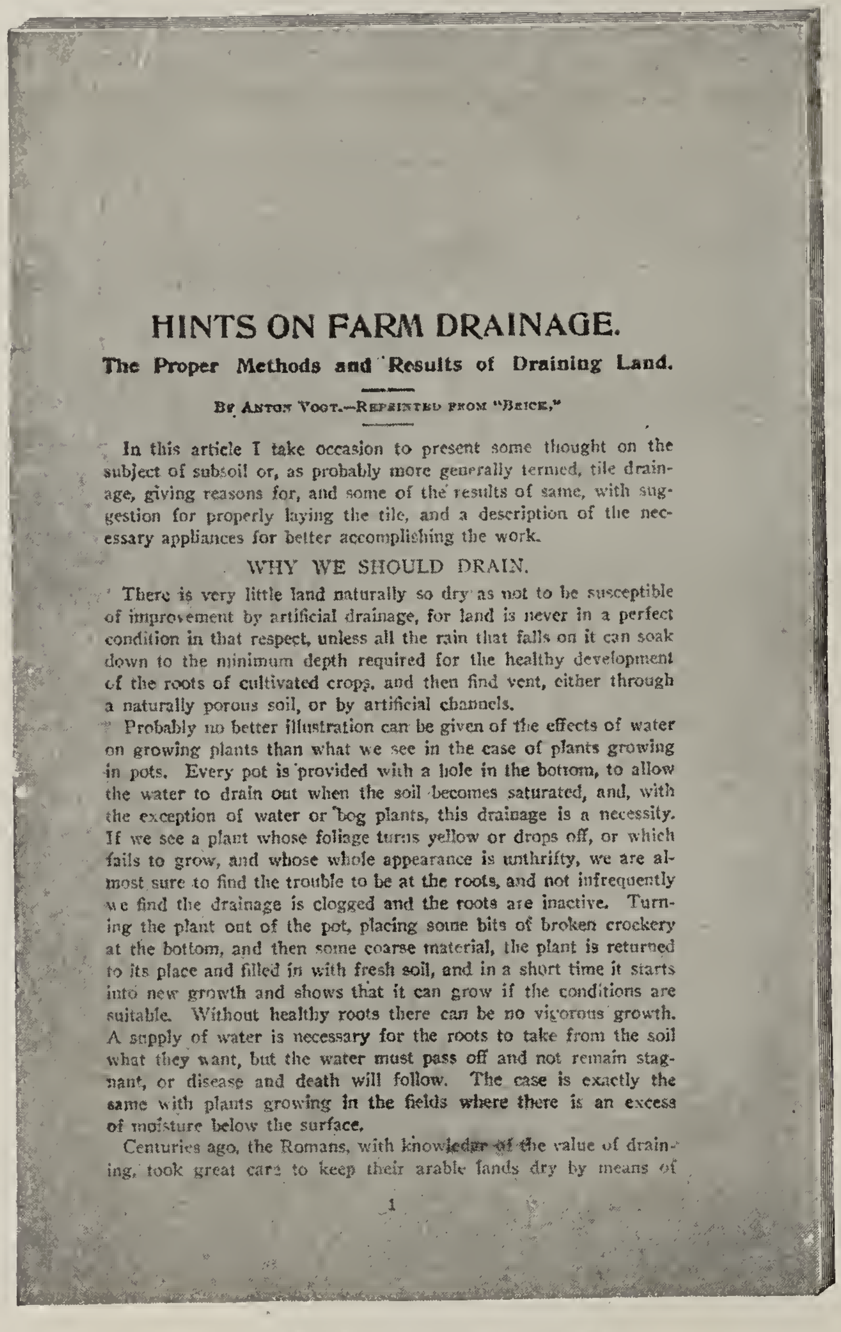
For descriptive circular and prices address

HETHERINGTON & BERNER
INDIANAPOLIS, INDIANA



Demand Regulates Price

These Booklets Create the Demand



HINTS ON FARM DRAINAGE.

The Proper Methods and Results of Draining Land.

By Anton Vogt.—Reprinted from "Brick."

In this article I take occasion to present some thought on the subject of subsoil or, as probably more generally termed, tile drainage, giving reasons for, and some of the results of same, with suggestion for properly laying the tile, and a description of the necessary appliances for better accomplishing the work.

WHY WE SHOULD DRAIN.

There is very little land naturally so dry as not to be susceptible of improvement by artificial drainage, for land is never in a perfect condition in that respect, unless all the rain that falls on it can soak down to the minimum depth required for the healthy development of the roots of cultivated crops, and then find vent, either through a naturally porous soil, or by artificial channels.

Probably no better illustration can be given of the effects of water on growing plants than what we see in the case of plants growing in pots. Every pot is provided with a hole in the bottom, to allow the water to drain out when the soil becomes saturated, and, with the exception of water or bog plants, this drainage is a necessity. If we see a plant whose foliage turns yellow or drops off, or which fails to grow, and whose whole appearance is unthrifty, we are almost sure to find the trouble to be at the roots, and not infrequently we find the drainage is clogged and the roots are inactive. Turning the plant out of the pot, placing some bits of broken crockery at the bottom, and then some coarse material, the plant is returned to its place and filled in with fresh soil, and in a short time it starts into new growth and shows that it can grow if the conditions are suitable. Without healthy roots there can be no vigorous growth. A supply of water is necessary for the roots to take from the soil what they want, but the water must pass off and not remain stagnant, or disease and death will follow. The case is exactly the same with plants growing in the fields where there is an excess of moisture below the surface.

Centuries ago, the Romans, with knowledge of the value of draining, took great care to keep their arable lands dry by means of

1

Size 5"x8". Contains 24 Pages

THESE BOOKLETS, liberally distributed among the farmers in your section, will educate them to use drain tile to a greater degree than ever before, for it is a valuable text book on farm drainage, by Anton Vogt, a recognized authority, and deals in an extensive way with every phase of farm drainage.

Thousands of these

Hints on Farm Drainage

have been used by drain tile manufacturers all over America, and if you have not tried them yet send for a sample copy today. After you have read it you will realize its value and order a quantity for distribution.

PRICES

100 Copies	$3.00
200 Copies	5.00
300 Copies	$ 7.00
500 Copies	12.00
1000 Copies	$17.00

Sample Copy Free

On orders of 500 or more the name and address of purchaser will be printed free on outside cover. Address,

Brick and Clay Record

445 Plymouth Court, Chicago

SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Big "Chief" Among Belts

Here's an individual belt, 1443 ft. long that will blow your industrial enemy, "overhead cost," sky high.

The California Hawaiian Sugar Refining Co. ordered this belt to replace a Goodrich Belt which caught and carried 200 tons of sugar daily over nine years.

Length, 1443 ft. Width, 36 ins.
Plies, 7.
Belt, net weight, 11,983 lbs.
Roll diameter, 8 ft., 2 ins.

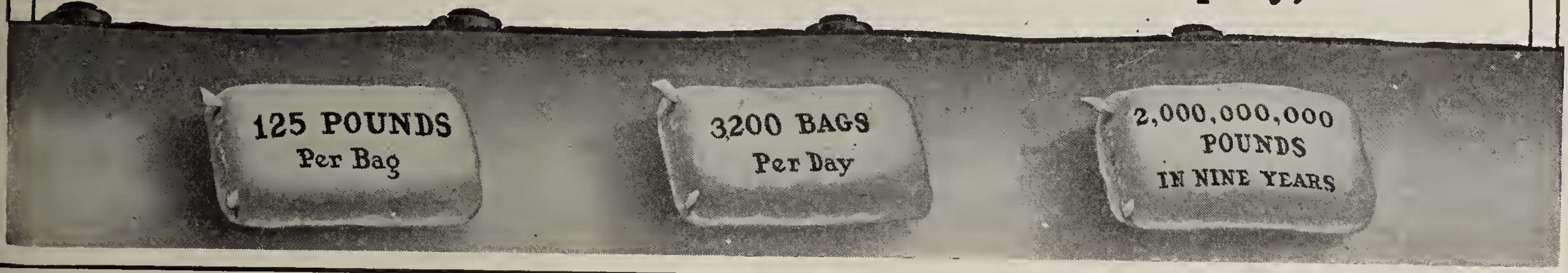
200 tons in and 200 tons out, per eight hour run, every pound falling 4 feet onto the belt, is just an average daily load.

That sturdy quality is hereditary

GOODRICH Conveyor Belts

are born that way. You get out of them in service what Goodrich puts into them in manufacture—forty-six years of know how—the kind that makes a two billion pound load possible.

The B. F. Goodrich Company, Factories: Akron, Ohio



Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

HERAEUS Le Chatelier PYROMETER

"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular co-ordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermo-couples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

We Supply Pyrometer Installations

"MADE FOR YOU" not "MADE TO DO"

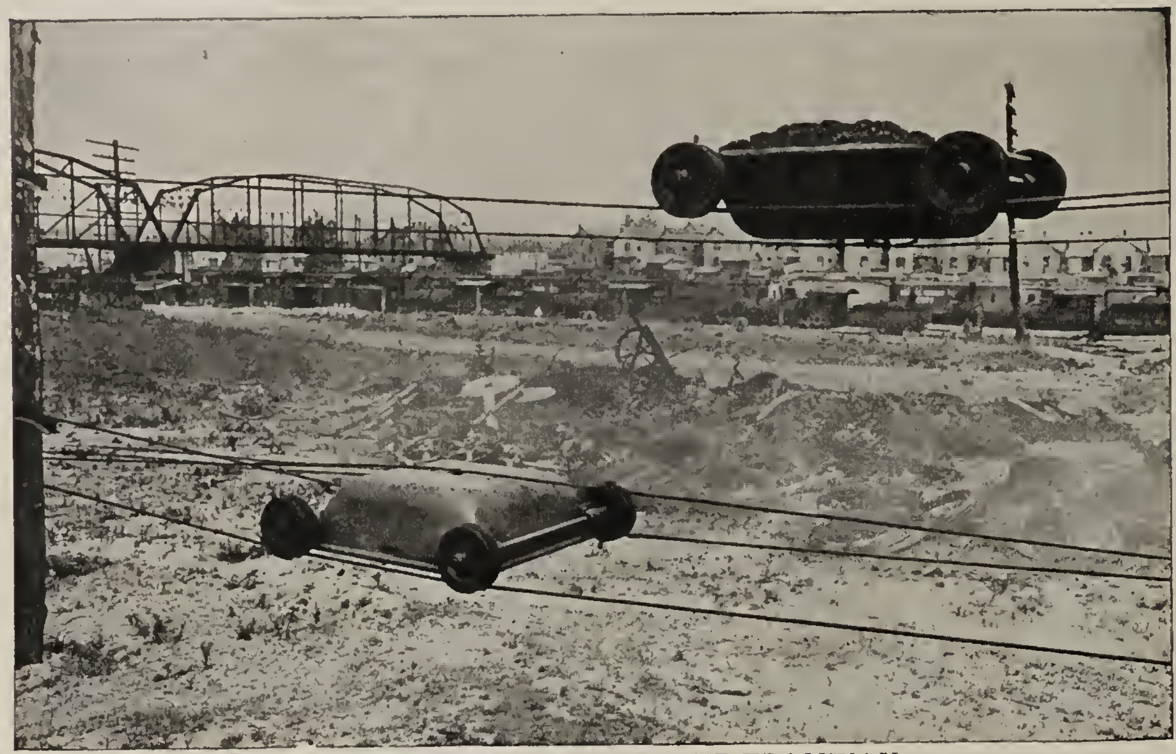
Let Us Figure on Your Requirements

CHARLES ENGELHARD

30 Church Street
NEW YORK

SAY I SAW IT IN BRICK AND CLAY RECORD

CONSIDER!



THE BARROWS OR A LOOP-LINE TRAMWAY

You have to haul clay, ore, sand or any other material five hundred feet to five miles.

This material is in or can be brought to a small bin with discharge chute attended by one man.

A continuous stream of barrows pass the bin each receiving its full load, the operator simply opening and closing a gate in the chute.

The barrows pass on down the line through the air, at the end they automatically turn over, dumping the load and pass back to the starting point ready for another load.

Not a Human Being Touches the Barrows.

They move along regularly and automatically. This is a Lawson Loop-Line Tramway.

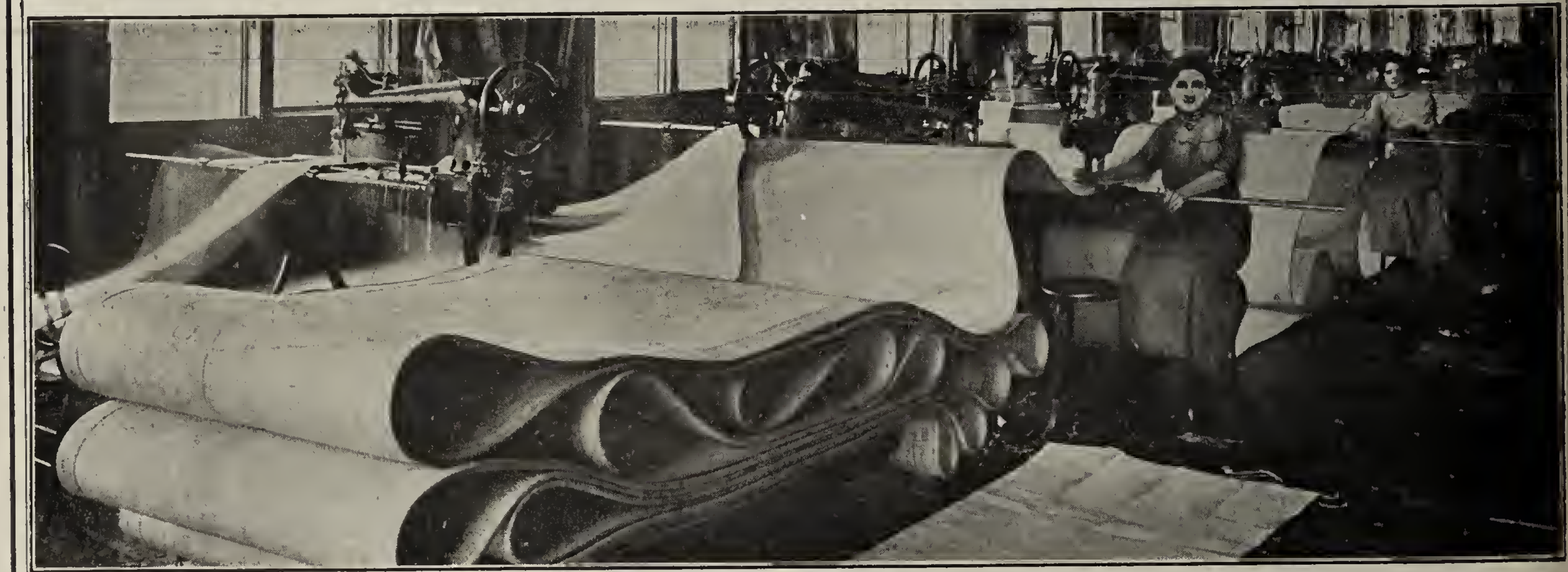
CAN YOU BEAT IT?

Write for full information

AMBURSEN COMPANY

61 Broadway
NEW YORK CITY

Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making Sawyer Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

More Belting Service for Your Money

THE GANDY BELT—the Original Stitched Cotton Duck Belt—meets with greater favor each year. Every year shows larger sales and 1915 will prove no exception.

There's a reason. The Gandy belt is giving satisfactory service in all industries—its users have found it the most economical belting to employ.

This economy is due in a measure to certain wear-proofing features found only in Gandy—the extra heavy cotton duck used in its manufacture, its special water and oil resisting qualities.

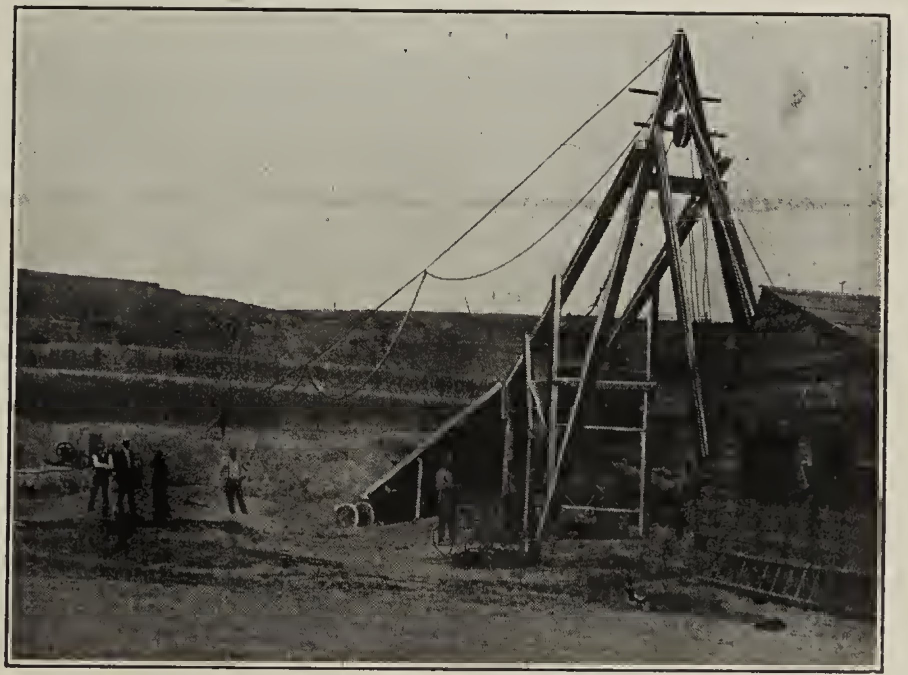
Also its low cost, less than 1/3 the price of leather belting, much less than rubber belting, while *It Does The Work*. Shall we mail you samples and quote prices?

The Gandy Belting Company, 732 W. Pratt Street, Baltimore, Md.

New York Office, 36 Warren Street

GANDY BELTING

Three Hundred Cubic Yards of Tough Clay in One Day



That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will dig and deliver—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

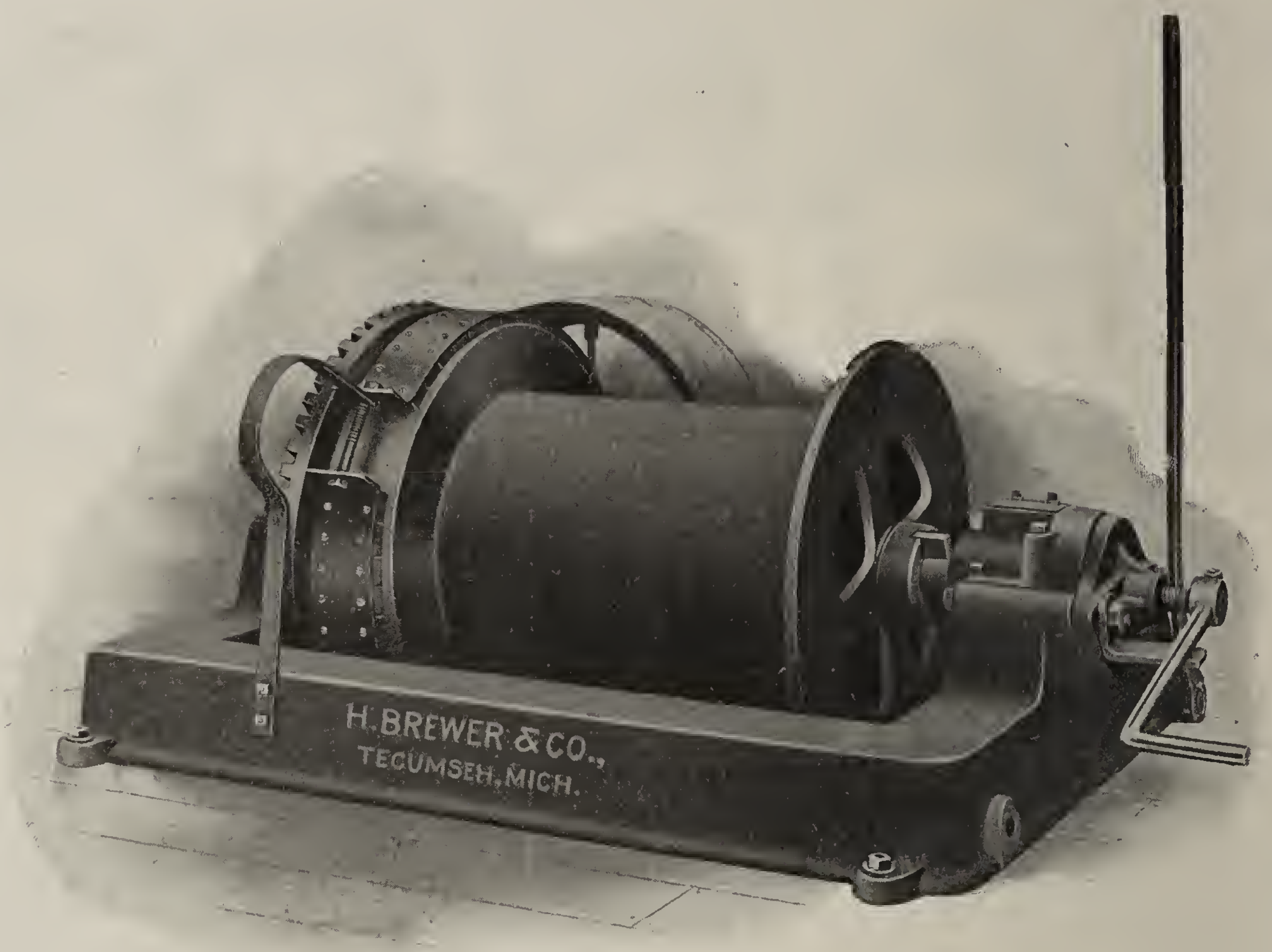
SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.

SAY I SAW IT IN BRICK AND CLAY RECORD

IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD

HOISTS

You can buy a Brewer Hoist without buying trouble with it. It will keep on hoisting without any coaxing. We have spur-geared hoists, bevel-geared hoists, spur-friction hoists and bevel-friction hoists. Large ones and small ones and all of them ***good.***



This is a Heavy Bevel-Geared Pattern

It is No. 28. It weighs 3,000 pounds. The drug is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

If you ask for our catalog you will get it

H. BREWER & COMPANY, Tecumseh, Mich.

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

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Pittsburg Tile Mfg. Co., E. Liverpool, O 7

TILE (ROOFING)

National Roofing Tile Co., Lima, O 7

Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook. E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
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Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Fisklock—Fiske & Co., Inc., Boston and New York.
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Ginger—Fraser-Myers Co., Dallas, Tex.
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Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
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Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
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Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
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Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
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Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
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Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
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Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
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Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
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Metropolitan Block—Mctropolitan Pav. Brick Co., Canton, O.
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Navajo—Puritan Brick Co., Hamden, O.
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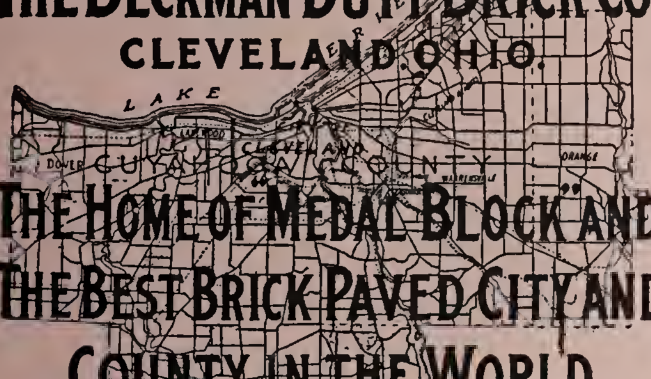

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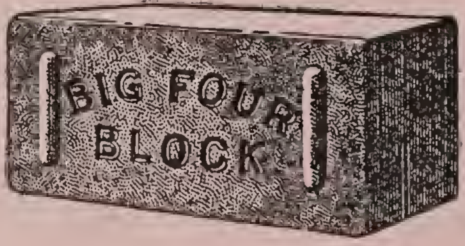

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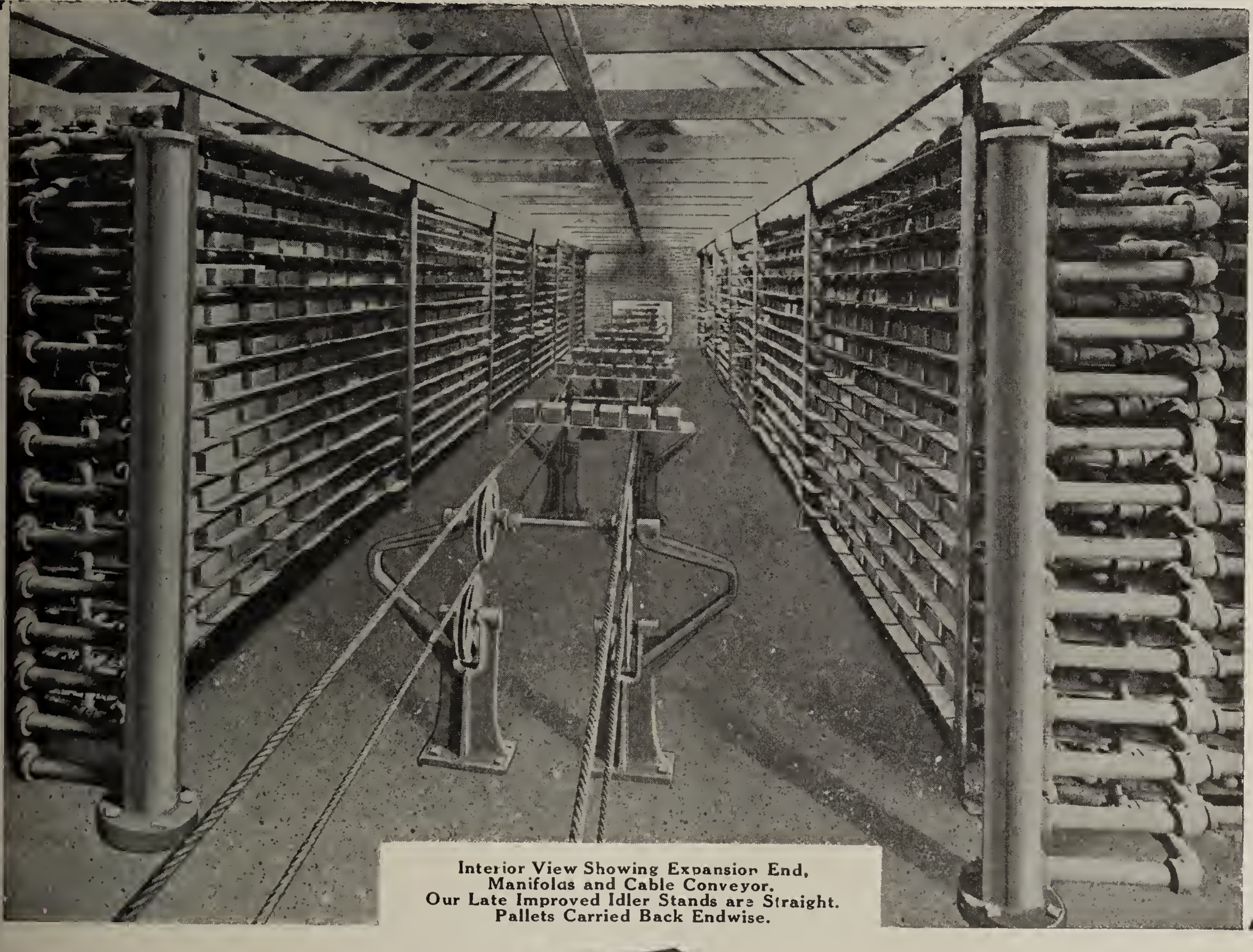

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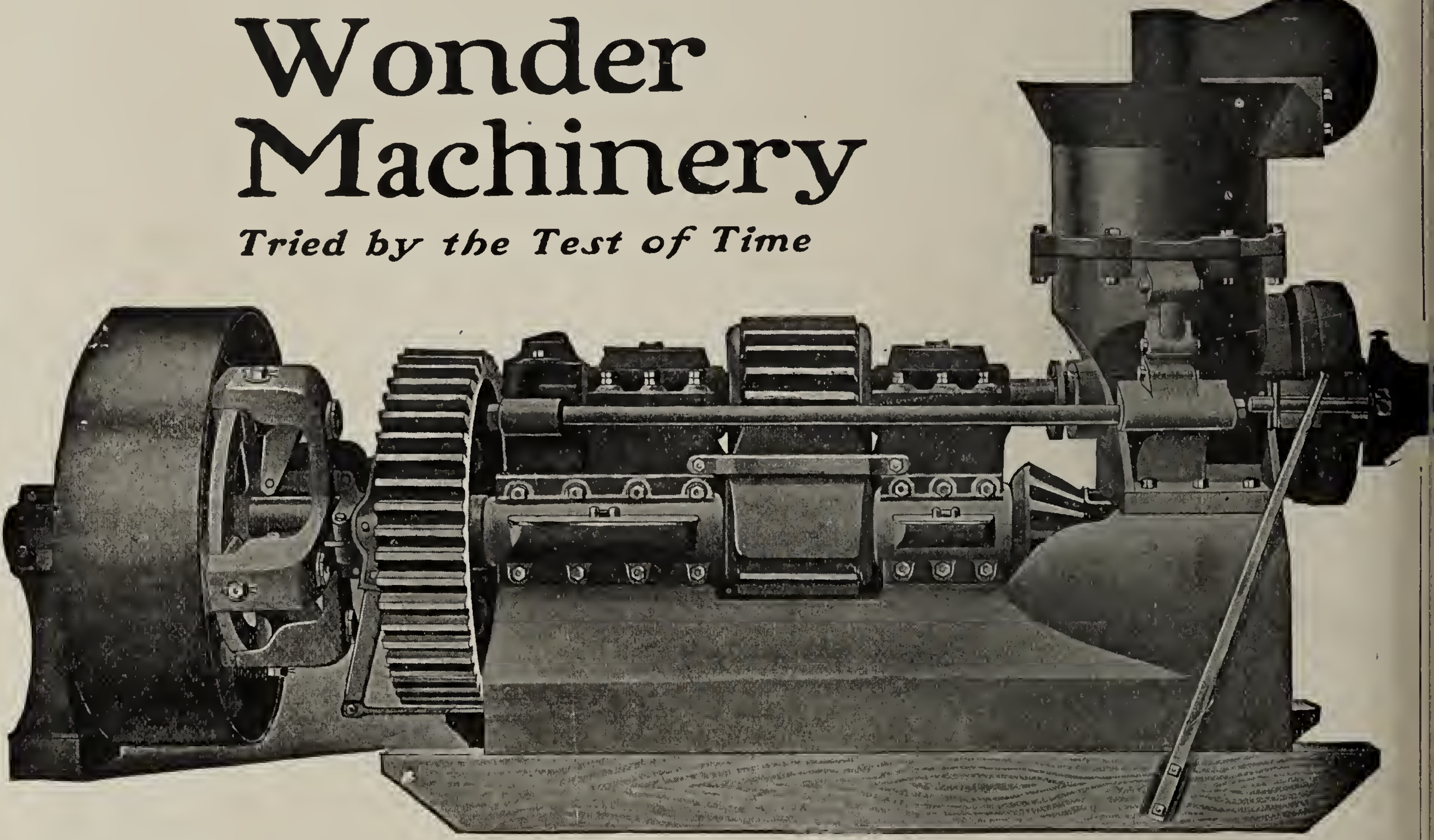

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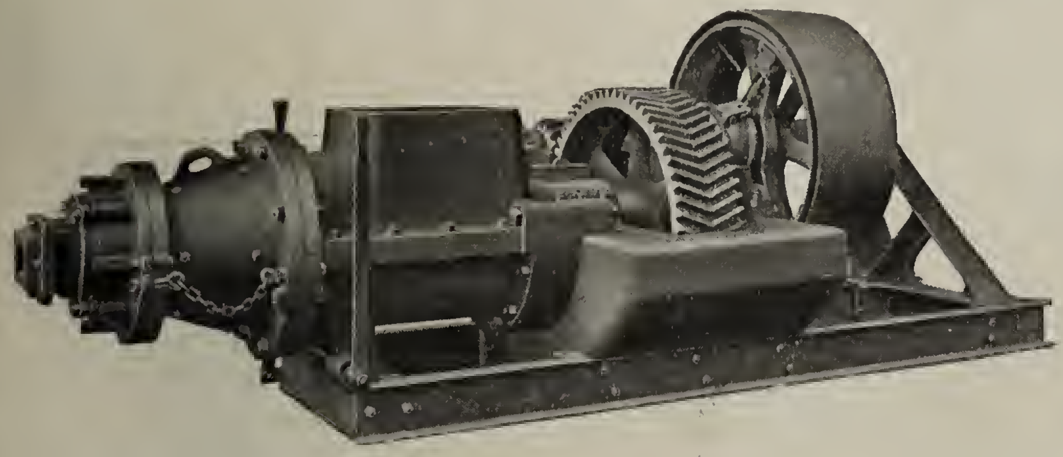

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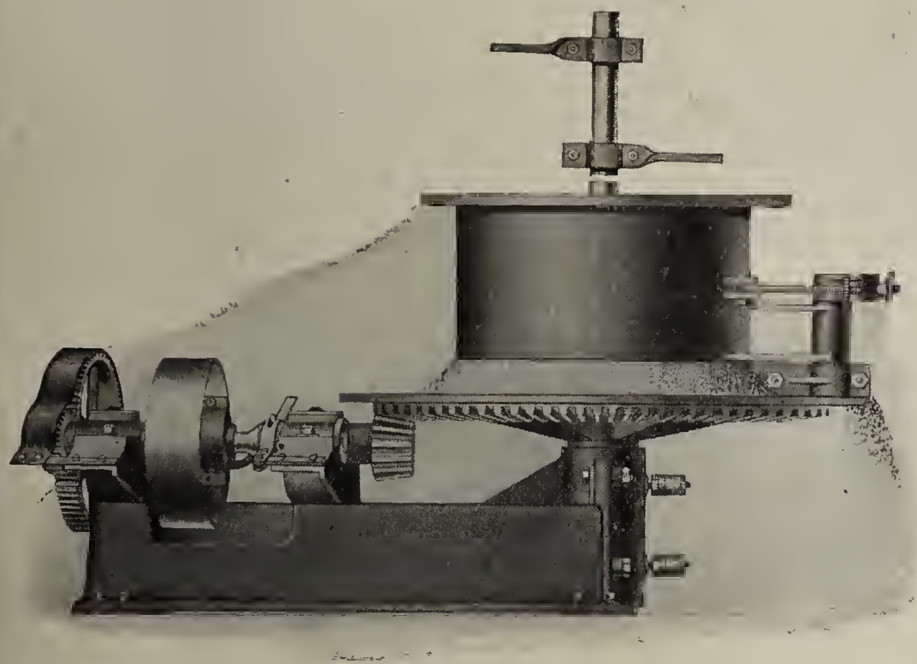

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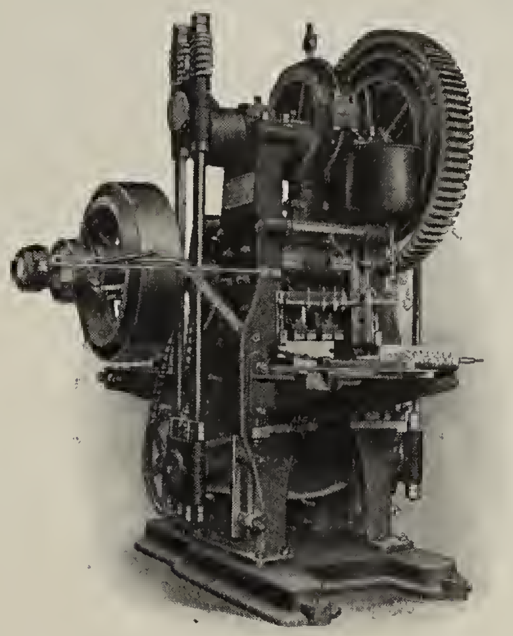
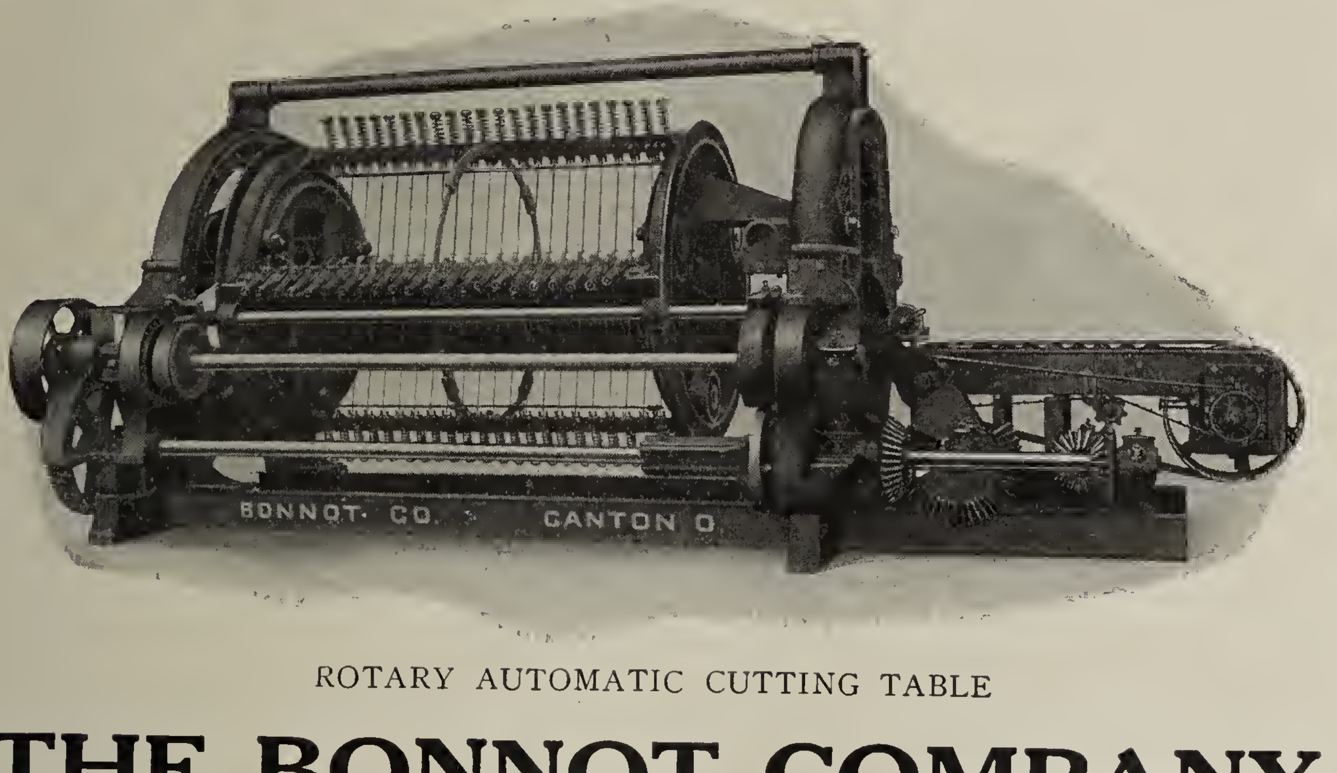


BONNOT REPRESS



ROTARY AUTOMATIC CUTTING TABLE

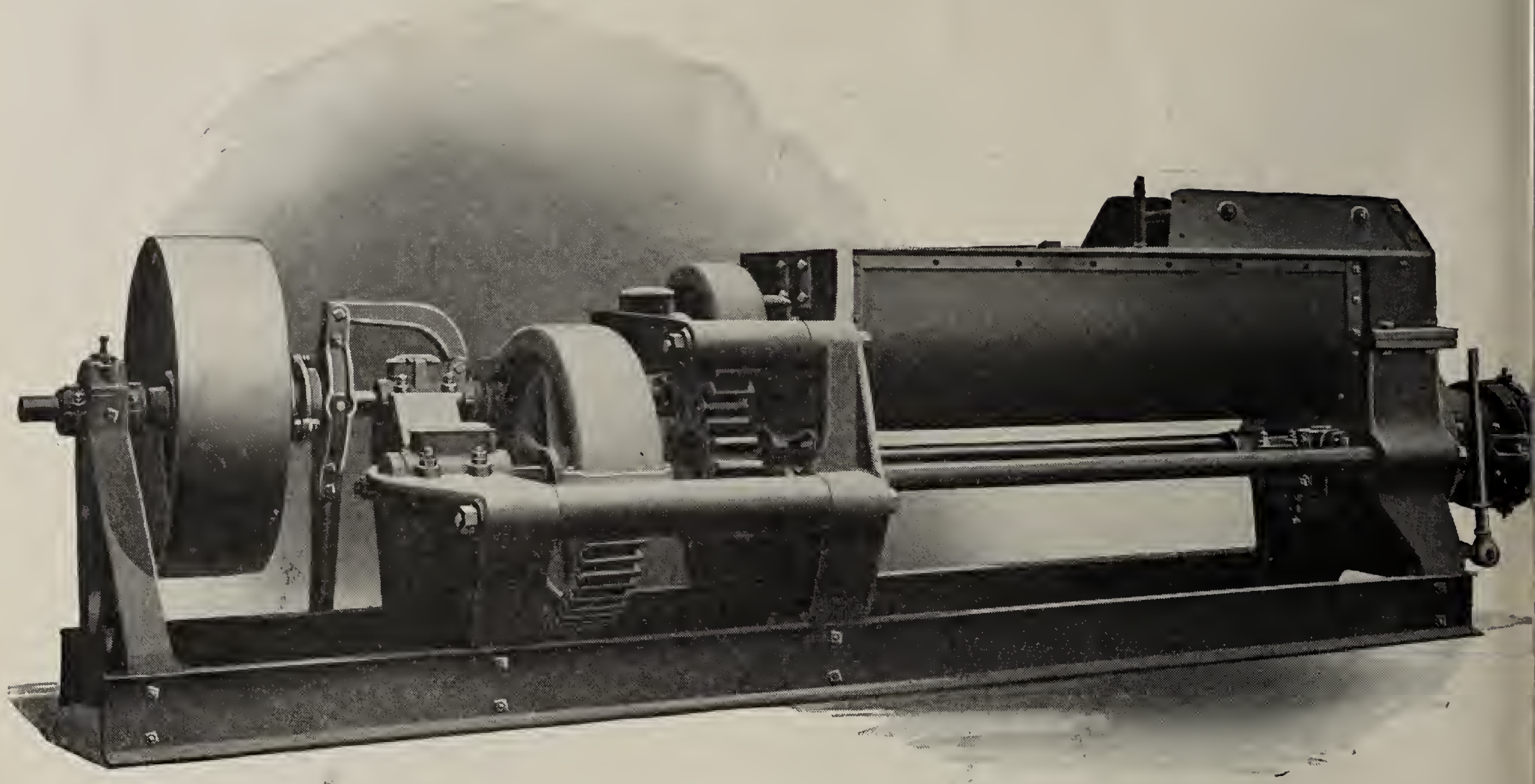
THE BONNOT COMPANY

CANTON, OHIO

909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

SAY "I SAW IT IN" BRICK AND CLAY RECORD



Union Brick and Tile Machine

Inexpensive to Install—

because it requires only one driving belt and pulley, and eliminates the structural work necessary to support a separate pug mill.

Economical to Operate—

because the one set of gears—all slow-moving—create less friction, require less repairs, and consume less power.

Convenient—

because the feeding point is only 4½ feet from the floor line, and surface clay can be fed direct into the pug chamber.

A thoroughly dependable machine with three features which have made it especially satisfactory where both brick and tile are manufactured. Folder 303 explains in detail.

E. M. FREESE & CO.

130 South Street **GALION, OHI**

Dependable Machinery of Proven Efficiency

SAY I SAW IT IN BRICK AND CLAY RECORD

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany all orders.

WANTED—HELP.

WANTED AT ONCE—Men to learn bricklaying, for positions paying $90.00 to $175.00 a month, or with a view of conducting their own business at $3,000 to $6,000 a year profit. Men thoroughly trained to become experts in a few months' time; expert instructors; tools instead of books used; training given under ACTUAL WORKING CONDITIONS; day or night courses; tuition very low; terms easy. Plumbing and electricity, motion picture operating and drafting also taught. Big demand now for men in these profitable trades. Don't delay. Write for full particulars TODAY. B. W. Cooke, Director, Coyne National Trade Schools, 31 E. Illinois St., Chicago, Ill. 9-4

WANTED—Foreman for dry-press brick plant. Good chance for promotion. Address: 10-E, care of "Brick and Clay Record." 10-1-P

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—Boynton, Oklahoma, wants a hollow tile and face brick plant. Have superior material and offer three-cent gas, free sites and low freight rates. Interested parties should address John H. Mosier, Muskogee, Okla. 9-2-2

WANTED—POSITIONS.

SITUATION WANTED—By a man who thoroughly understands the clay business from pit to office, including the selling, and also thoroughly understands the manufacture of high-grade face brick, fire brick, common brick, sewer pipe and fireproofing, also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of dryer troubles and kiln troubles. A first-class handler of labor to get results. Wants to get with a concern where ability will be recognized. Address: 8-R, care of "Brick and Clay Record." 8-TF.

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacturing of common and face brick, pavers and drain tile. Have used all kinds of clays and up-and-down draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address 9-BA, care of "Brick and Clay Record. 9-2-3P

WANTED—Position as superintendent of brick plant. Thoroughly understand the manufacture of face brick, dry press and stiff-mud process; also common brick and fireproofing. Understand burning with oil, gas or coal. Can furnish A No. 1 references where I am employed. Sixteen years' experience. Address 9-BD, care of "Brick and Clay Record." 9-2-2P

WANTED—Situation as superintendent or manager of clay plant. Thoroughly understand designing, erecting and operating up-to-date plants, manufacturing all classes of brick and also partition tile. A No. 1 references. Address: 10-B, care of "Brick and Clay Record." 10-2

EXPERT CLAYWORKER and Stoneware-plant manager open for engagement. Over 25 years' experience. Understands all kinds of glazes and machinery, also kiln burner. Can furnish best references. Address: 10-K, care of "Brick and Clay Record." 10-1

WANTED—EQUIPMENT

WANTED—Two second-hand clay harvesters. Must be in good condition and cheap. Cedar Rapids Brick Co., Cedar Rapids, Iowa. 10-2

WANTED—About 25 twelve-shelf dryer cars. Paterson make preferred. Address: 10-D, care of "Brick and Clay Record." 10-1

FOR SALE—CLAYWORKING PLANTS.

FOR SALE, OR MIGHT LEASE.

Great opportunity for a practical brick man. Face and Fire-Clay Brick Plant on Vineyard Sound, Marthas Vineyard, Mass., comprising 40 acres buff-burning fire clay averaging 40 ft. deep. Product goes to market in vessels at $2.00 to $3.00 per M. Now in running order with following equipment: 10-ton locomotive, 7 flat cars, 1 crusher, 1 set smooth rolls, 1 Fate Imperial machine, 1 Raymond semi-automatic cutter, 6-track dryer with 11-foot ¾ housed Sturtevant fan, 1 84 disc fan, 100 dryer cars, 1 30-foot and 1 21-foot down-draft kilns, 150 h.p. boiler, 1 150 and 1 35-h.p. engine, 1 40-k.w. generator, 1 35 and 1 15-h.p. motor, ½ mile track to wharf, abundant water for plant. S. D. Whittemore, 101 Tremont St., Boston, Mass. 10-2

FOR SALE OR RENT—Desirable face-brick plant, well equipped, abundance of raw materials, located in Eastern Pennsylvania. Owners have increased their buying and selling business to such extent have found it advisable to discontinue the manufacture of brick. Practical brickmaker with small capital can handle this proposition. Must be responsible party. Address: 10-A, care of "Brick and Clay Record." 10-2

FOR SALE—Tile plant, Indiana, seventeen acres, with 10,800 feet floor space; one new 24-foot kiln; machinery in good condition and making tile, with a good market. A bargain for some one with small capital. Address 9-BC, care of "Brick and Clay Record." 9-2-1P

BRICKYARD FOR SALE—The old and well-established brickyard of L. H. Cordes & Co., in the city of Watertown, Wisconsin, with land, machinery and equipment is offered for sale. Address: L. H. Cordes & Co. 9-3

BRICK AND TILE YARD—Northeast Ohio, nearest competitor 30 miles. Two 24-foot kilns, steam and open dryer, electric motor. Seventeen acres, eight-room home. Plant now running. Address: 10-C, care of "Brick and Clay Record." 10-1P

SPARTA, MICHIGAN. For sale or lease—Brick and tile plant. Clay supply unlimited. Great demand for sewer tile. Good investment for party with small capital. Address Clark, No. 29 Fountain St., West, Grand Rapids, Mich. 9-2-2P

FOR SALE OR LEASE—Lancaster (N. H.) Brick Company's plant. Unlimited clay and sand; side track to kilns. Will bear investigation. 9-3P

FOR SALE—Complete brick plant. Heart of orange belt. Inexhaustible clay deposit. Good demand for product. 140 acre farm, dwellings, tenants, etc. Farm worth price. Address: 10-L, care of "Brick and Clay Record." 10-2

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAY LANDS.

CHANCE OF A LIFETIME—Celebrated Carter County, Kentucky, fire and plastic clays. Coal in connection, large acreage. Address: J. W. Henderson, Pres., Ashland, Ky. 9-3

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE CHEAP—Four-ton Whitcomb gasoline motor for hauling clay cars, Thew ⅝ yd. steam shovel, Clearfield 9 ft. dry pan, Berg 4-mold dry press, Freese No. 1 brick machine with automatic cutter, Freese largest size automatic cutter, Stevenson 8 ft. wet pan, Arnold-Creager brick machine, Chambers 10 ft. pugmill, Blake 9x15 in. jaw crusher. The above machines are all in good running order and much of it run only one season. C. H. Horton Co., Painesville, Ohio. 10-1

FOR SALE AT YOUR OWN PRICE.

1 Frost engine, 85 h-p.
1 Frost boiler, 120 h-p.
1 Freese pugmill.
1 Freese disintegrator.
1 Freese drum hoist, 300 ft. cable; 1.5 ft. Buffalo fan.
3,000 ft. T rails, 2 dump cars.
24 steel bands for four 36 ft. down-draft kilns, also doors, grates, etc., in good shape, used but very little. Equipment all in good order. G. H. Wenner, Minden, Nebr. 10-3-P

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—One 10,000 capacity brick outfit, consisting of one pugmill, disintegrator, etc. Machinery used less than six months; in good condition. Also one boiler and engine. Columbiana Savings Bank, Columbiana, Ala. 9-4

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also **FROGS, SWITCHES, SPIKES and BOLTS.** We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

Continued on Page 562

The Wise Little Man of
FATE

“When You Bu

You Get More Than Just Pig Iron

—“The Wise Little Man of Fate”

There is more to buying clay machinery than getting just so many pounds of iron—so many screws, bolts, cogs and wheels.

The raw material—while important in itself, is, after all, but a small portion of the product—the rest lies hidden from unseeing eyes.

The pigs of iron and the bars of steel—although changed in shape and texture, are still pigs and bars—plus that invisible something—the whole visualized in the form of a brick machine, a pug mill, or whatever you buy, but—

What You Actually Buy is SERVICE

The Service BACK of these visualized pigs and bars—the Service that SHAPES them into machines and devices of EFFICIENCY—that STAYS with them until they are in your clay plant—that CONTINUES with them as long as they are a useful part of your PRODUCTIVE ability.

And the More SERVICE You Get the Better BARGAIN You’ve Struck

You see, then—when you buy clay machinery, you are really buying only about ONE part of pig iron and steel bars and really about FIVE parts of SERVICE.

It behooves you, therefore, to look well into the SERVICE you are buying, does it not?

When You Buy FATE Machinery You Get This Full-Measure Service:

The very best *Raw Materials*—the pigs of iron and the bars of steel.

The very best *service* that goes with these bars and pigs—the skill and the processes that convert them into the toughest and most lasting of textures.

The very best *service* that takes these crude materials and with designs, plans and patterns—all worked out by skillful hands—turns them into EFFICIENT machines and devices.

The very best *service* that guides and directs these machines into your plant and places them there in the position and in the working condition that gives you all the EFFICIENCY and all the SERVICE we intended they should give you.

The very best *service* that aids you in keeping these machines up to the maximum of their efficiency as long as you use them.

Where and How FATE Full-Measure Service Applies to You

From the day you decide to “break ground” for a new plant, or install a new machine—FATE Full-Measure Service begins its work for you—and **all** that it gives—mind you—costs you NO more than the **little** any other machinery manufacturer **promises** you—for FATE Full-Measure Service is a PART of the machine or device you buy.

1—We test your clay—giving it a **practical** test, under **real** conditions—in a **full-sized** clay machine, by a **real** clay-worker. This test will tell you just **what** ware your clay will make at a **profit.** If it is an unprofitable clay **this** fact, also, will be disclosed, and you will be saved further outlay.

2—We tell you just **what** machines and equipment will best serve you—for some clays will not work to an advantage on just any machine.

3—We furnish you machinery for the purpose wanted and needed, and not to make a plant afflicted with too much machinery—ever remembering that profits largely depend upon running your plant with the minimum of expense in labor and effort.

4—We furnish you machinery that will do the work for which it is wanted—and also see that you understand how to get out of the machines what is wanted.

5—We will keep in touch with these machines and see that they accomplish ALL they are expected to do, and that they **continue** to keep up this efficiency.

SAY I SAW IT IN BRICK AND CLAY RECORD

FATE Machinery

Harley H. Fate

George B. Drennan

Harry S. Fate

This is Our Service Team

The Men Behind the Service YOU Get

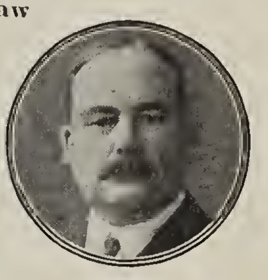
The measure of the Service you buy depends, of course, upon the men that are responsible for that service.

If these men are **capable** and do not shirk their responsibility by leaving what they themselves should do for someone else do do—then you get a Full-Measure.

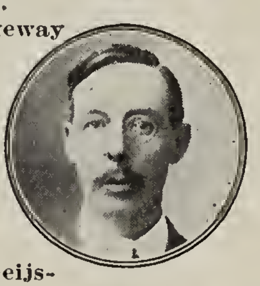
The men behind the FATE Full-Measure Service are not only capable, but they are **workers.** Each member of the Fate organization is a plain, unvarnished workman—raised up in the business from the apprenticeship job in the shop, through the various progressive stages to his present executive position. Success has not glued him to the office chair and he is on the job six days in the week.

Ray Sykes

H. J. Votaw



J. A. Ridgeway



S. Geijsbeek

G. A. Anderson

General Management

Harley H. Fate—the president and general manager, has **personal** charge of the general management of the J. D. Fate Company and is in intimate contact with every phase of the entire manufacture of clay working machinery—the general supervision of the purchase of raw material—its visualization into machinery—its sale and its operation after its sale.

To Mr. Fate falls the responsibility of seeing that the long established standards of excellence of "The House of Fate" shall be maintained—that its patrons get more than just pigs of iron and bars of steel.

Factory Management

To Harry S. Fate, the vice-president, is intrusted the superintendency of every step of the manufacture—from the time the raw material comes in until it leaves the factory a finished product.

No subordinate shares this important part of the work—the SERVICE you buy, for Vice-President Fate personally supervises every progressive step.

Engineering Service

Drilled in the School of Technicality and Theory and graduated in the School of Experience, George B. Drennan, the Secretary and Treasurer, is unusually equipped to have charge of the Advisory Department.

To him is intrusted the important duty of advising our patrons in laying out new plants or remodeling old ones, if they desire this.

And, of Mr. Drennan in this work, it has been said that he has had more **practical** experience and has assisted in laying out more **profit**-making plants operating today than is accredited to any other one man.

Sales Service

To Ray Sykes falls the lot of the presentation of the Fate Products—the important duty of bringing you—the buyer, into direct contact with the FATE Machines and Devices—of which there is everything that the clayworker uses—and the FATE Full-Measure Service, which goes with the Fate Machines.

Associated with him in this work, is a very able staff of sales experts—men with fertile brains and experience in the clayworking field—not merely salesmen, but advisors in every sense of the word. These men complete the chain that brings the Fate Full-Measure Service right to the doors of your office and plant.

H. J. Votaw devotes his energies to serving the patrons in the Central West and Northwest. G. A. Anderson is always busily engaged in looking after the interests of patrons in the Middle States. S. Geijsbeek serves the patrons in the Far West from our office at 604 Blake-McCall Bldg., Portland, Oregon, and J. A. Ridgeway those in the East from our office in the Woolworth Bldg., New York City. These men are at your service at all times.

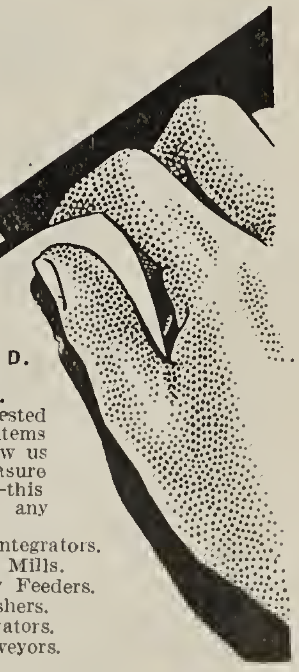
Why Not Make a Test of This Service?

There is just one SURE way of knowing the Fate Full-Measure Service—just ONE way of comparing it with the service offered you by other clay machinery manufacturers—and that is to TEST it.

Since you do not place yourself under any obligations—as it costs you NOTHING to make the test—why not do it?

Send the Coupon There is an "Investigation Coupon" at the right—an easy way for you to make this test. Check off the items of Service you are most interested in just now and watch the results. And, remember, there is no cost attached to this service—it's FREE to you.

The J. D. Fate Company
Plymouth, Ohio



INVESTIGATION COUPON

The J. D.
Fate Co.,
Plymouth, O.

We are interested in the following items and wish you to show us how your Full-Measure Service will benefit us—this request not obligating us in any manner:

☐ Clay Testing.
☐ Full equipment.
☐ Auger Brick Machinery.
☐ Drain Tile Machinery.
☐ Hollow Ware Machinery.
☐ Industrial Locomotives.
☐ Disintegrators.
☐ Pug Mills.
☐ Clay Feeders.
☐ Crushers.
☐ Elevators.
☐ Conveyors.

Name...

Town...State...............

SAY I SAW IT IN BRICK AND CLAY RECORD

Brick and Clay Record Classified Ads Are Result Producers

RAILS

all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. Immediate shipment from stock.

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.

PATENTS

Inventions Protected.
Trade Marks Registered.
Patents Investigated.
Established 1895.
HUBERT E. PECK.
635 F. St., Washington, D. C.

DO YOU **WANT**
An Employee?
A Position?
To Buy Anything?

HAVE YOU **FOR SALE**
Used Machinery?
Land, Plant or
Anything Else?

"Brick and Clay Record" Advertisements Bring Returns

RAILS

SMALL ORDERS GIVEN SPECIAL ATTENTION

40, 56, 60, 70, 75, 80, 85 & 90 lb.

RELAYING RAILS
FOR SIDINGS, SPURS, ETC.

8, 12, 16, 20, 25, 30, 35, 40 & 45 lb.

NEW STEEL RAILS
FROGS AND SWITCHES

SECOND-HAND Rails, cut to any length desired, for BRACING, UNDERPINNING, LINTELS, concrete REENFORCING, BUCKSTAVES. All kept in stock for quick shipment

RICHARDSON & CO., INC.
1103 Bessemer Bldg.,
PITTSBURG, PA.
RAIL DEALERS

The Schaffer Poidometer—*What it will do*

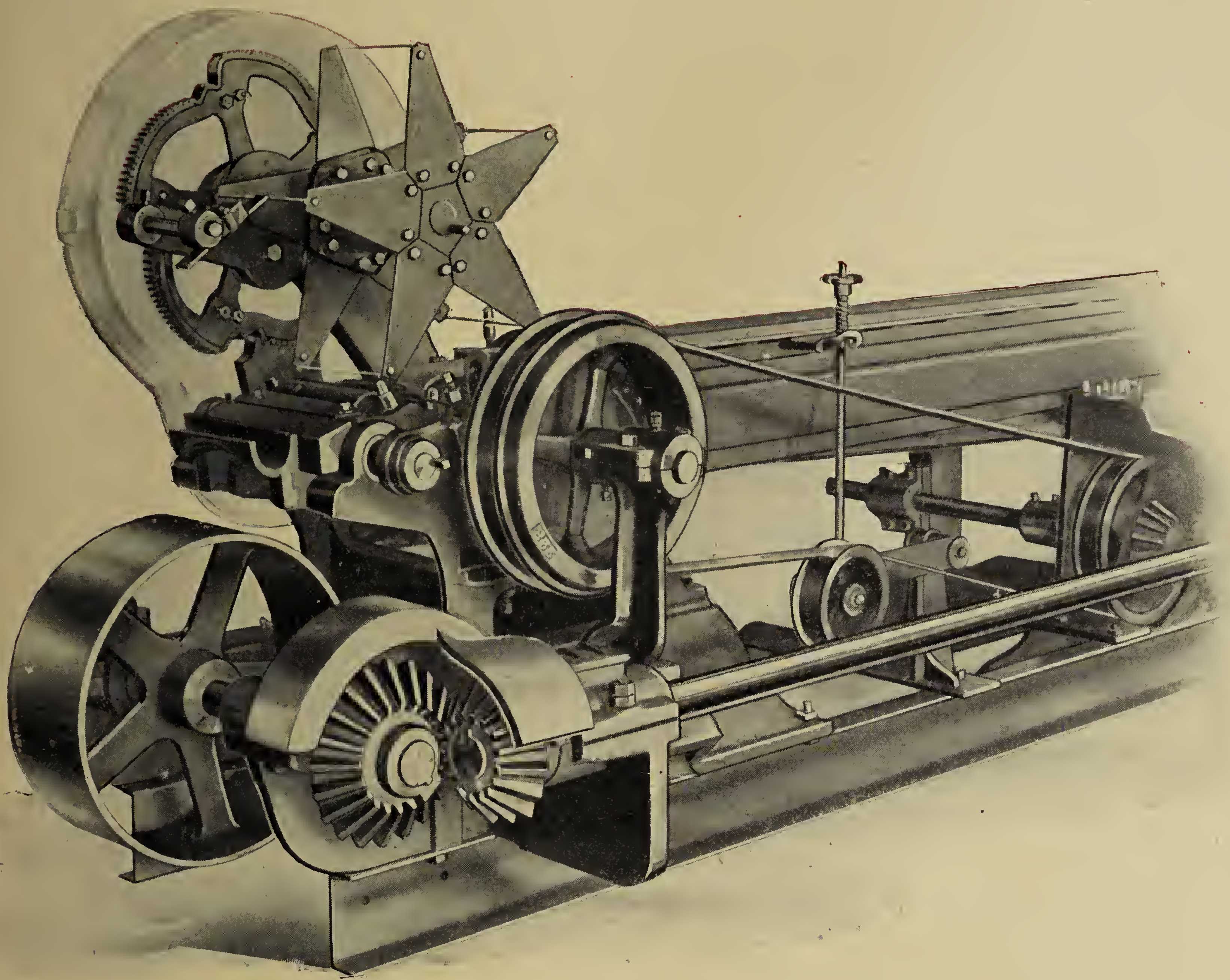
It Will
- —unite any number of materials in correct proportion.
- —deliver them to pug mill at a predetermined number of pounds per minute.
- —deliver water at a predetermined number of pints per minute.
- —produce a clay column evenly tempered, of absolute uniformity.
- —do this—and it eliminates the pug mill man.
- —reduce cracking, because the dry house man knows the material.
- —reduce burning loss, because the burner can always produce the same color and hardness.
- —pay for itself in one season by reduction in labor alone.
- —produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD

Consider the Advantage in Straight Cut Brick



You have certainly heard of the perfect work of the Steele End Cutter.

Did you ever see a cutter so simple and reliable looking?

If you have any doubts about the superior principle or workmanship of this cutter frankly ask us to show you.

Will handle the largest capacities. Will work with any machine.

Nearly a thousand in use.

Would you like your competitor to put in this cutter first?

J. C. STEELE & SONS, Statesville, N. C.

George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

THE NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION will, October eleventh to thirteenth, hold their Annual Convention in Dayton, Ohio.

The Manufacturers Equipment Company extends a welcome with a keen desire to make your visit both pleasant and profitable.

It suggests too, that you take this opportunity to secure authentic data concerning The Underwood Producer Gas Burning System.

Representatives of the Company will be on hand, ready to show to you facts that will prove that the Underwood System will burn pavers cheaper and better.

BRICK and CLAY RECORD

CUTTING DRYER COSTS IN HALF

IN ACTUAL PERFORMANCE THIS IS BEING DONE DAILY IN CLAYWORKING PLANTS BY

THE "PROCTOR" DRYER

Here are just a few of its accomplishments:

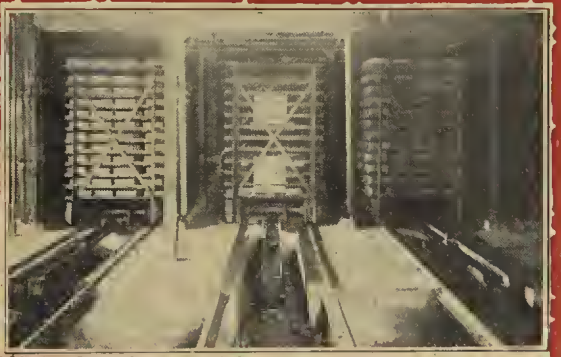
One brick plant has reduced its labor force from 8 to 5 men—they are using only 60 dryer cars as against a former equipment of 730.

Another brick plant has cut its drying period 50 percent with a big saving in labor and floor space—and breakage is practically unknown.

Still another plant making conduits is drying its ware in 90 to 135 **minutes** which formerly required 72 to 96 **hours.**

In succeeding issues of "Brick and Clay Record" we will produce additional evidence that will convince you that **you** should learn more about the "Proctor" System of Drying Clay Ware, which is revolutionizing this branch of the industry.

PHILADELPHIA TEXTILE MACHINERY CO.
PHILADELPHIA, PA

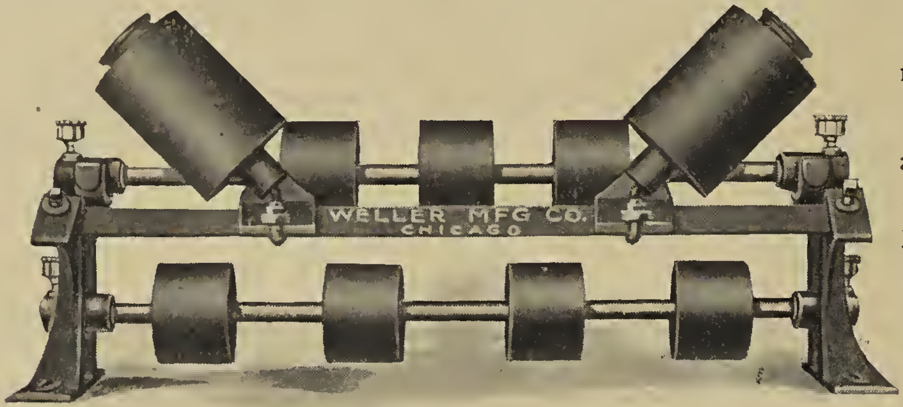


Vol. XLVII, No. 8 Chicago October 19, 1915

WELL ER-MADE

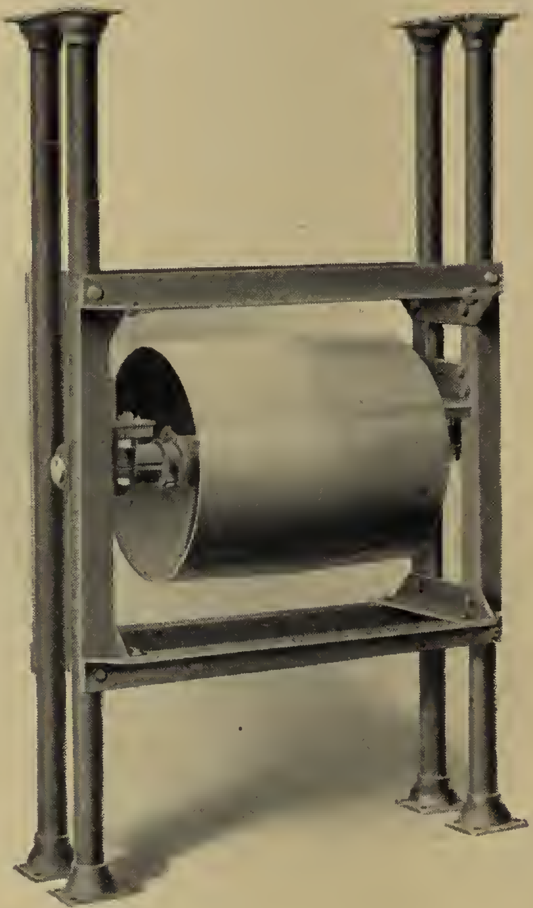
Belt Conveying Equipments

No method of conveying raw or ground clay, shale, grog, coal, etc., can equal in economical or satisfactory operation a properly designed and installed belt conveyor.



Our line of carriers is the most extensive of any manufacturer of similar equipment.

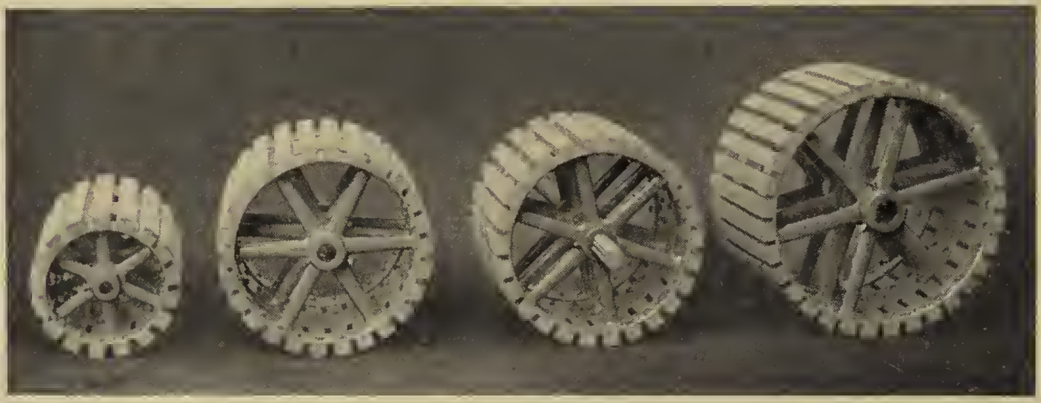
There are no freak designs, but the old tried, true and proven types that have been giving satisfactory service day in and day out for the past 25 or 30 years.



Automatic Take-ups maintain an absolutely pre-determined and constant tension on the belt, avoiding trouble and accidents from belt stretching due to load or weather conditions.

The need of attention to hand operated take-ups is eliminated and head and tail pulleys may be located in fixed position.

We build these take-ups to operate in vertical, horizontal or inclined position for belts up to 60 inches wide with pulleys from 12 to 60 inches in diameter.



Slatted pulleys for head and tail ends of conveyors or elevators eliminate the nuisance of clay sticking and packing on face of solid pulley.

We make them any diameter or face desired to suit conditions.

Our prices are right—fair to you and to ourselves

WE KNOW HOW AND DO BUILD GOOD

Elevating, Conveying and Power Transmitting Machinery

WELLER MFG. CO., CHICAGO

NEW YORK	BALTIMORE	AKRON	DALLAS	SAN FRANCISCO
50 Church St.	Garrett Bldg.	10 W. Buchtel Ave.	711 Main St.	316 Rialto Bldg.

Trautwein
DRYERS

THE LAST WORD IN CLAY PRODUCT DRYING

TRAUTWEIN DRYER & ENGINEERING CO.
417 SO. DEARBORN STREET
CHICAGO

AGAIN WE SAY:

THE CLAUDE SMITH KILNS

FOR BURNING CLAY PRODUCTS

ARE THE BEST WHICH EXPERIENCE AND LABOR CAN PRODUCE

Our Bulletin Tells You Why

CLAUDE SMITH COMPANY
KILN BUILDERS
PLYMOUTH BUILDING, CHICAGO, ILL.

SAY I SAW IT IN
BRICK AND CLAY RECORD

Service to Clayworkers

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Are You Ready for Prosperity?

After one of the most memorable years of depression thru which this country has passed, the owner of a large clay-working plant said: "This slump has been a blessing in disguise. It has given us time to do many things that we knew ought to be done, but which we were prevented from doing by the press of shipping orders. Now we have had time to consider our equipment and to carefully plan the improvements we will make during the coming winter."

War conditions and the uncertainties of finance have given investors a somewhat similar breathing spell. They have had time to look around and plan the manner in which they can most profitably put their money to work.

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THIS BOOK is based on notes made during the author's activities as superintendent of furnace operations in America, England and Germany. It digests, besides, all of the available information on the properties and preparation, sources and processes of manufacture, of the materials with which industrial furnaces are built. It includes, furthermore, a comprehensive study of the physical and chemical properties of these materials.

The author has aimed to bring some order out of the chaos which has hitherto existed in the data on this subject, and to correlate and systematize the available information.

He first classifies refractory materials and discusses the relations between slags and these materials. He then goes into the question of the preparation of the various kinds of refractories and their uses in the various metallurgical processes. He gives valuable data on the construction of furnaces, the testing of refractory products, the thermo-physical properties and heat measurements.

He undertakes to promote efficiency in furnace work and a reduction in the cost item of furnace repairs and masonry. He has been assisted by a number of specialists and manufacturers in the preparation of the material that appears in the pages of this valuable work. The book is for sale through "Brick and Clay Record's" Book Department, at $4.00, postpaid.

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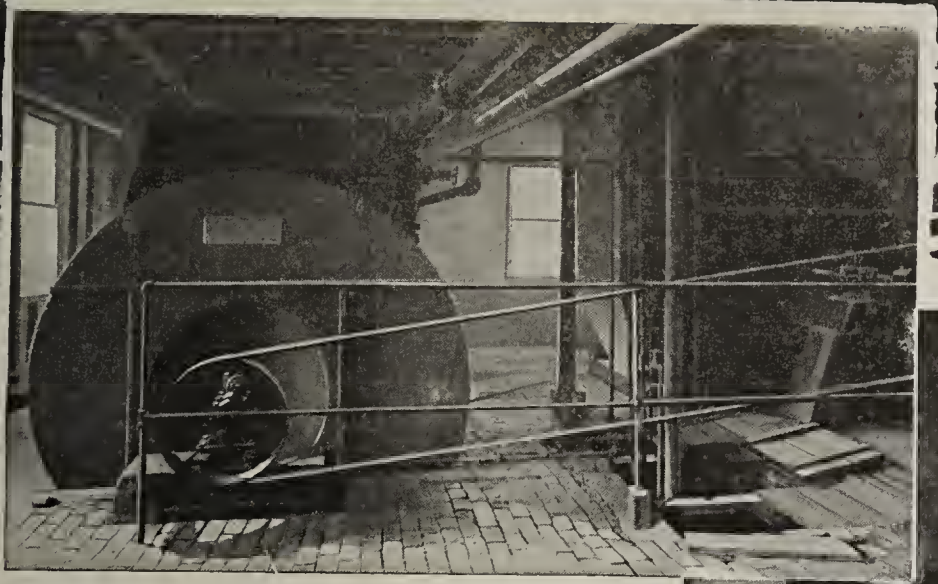

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We Could Not Successfully Drive Our Dry Pans Until We Installed

Link-Belt Silent Chain Drives

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THE ROBINSON CLAY PRODUCT CO.
Akron, Ohio, September 28, 1914.
Link-Belt Co., Rockefeller Building,
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Gentlemen:
Attention Mr. P. V. Wheeler.

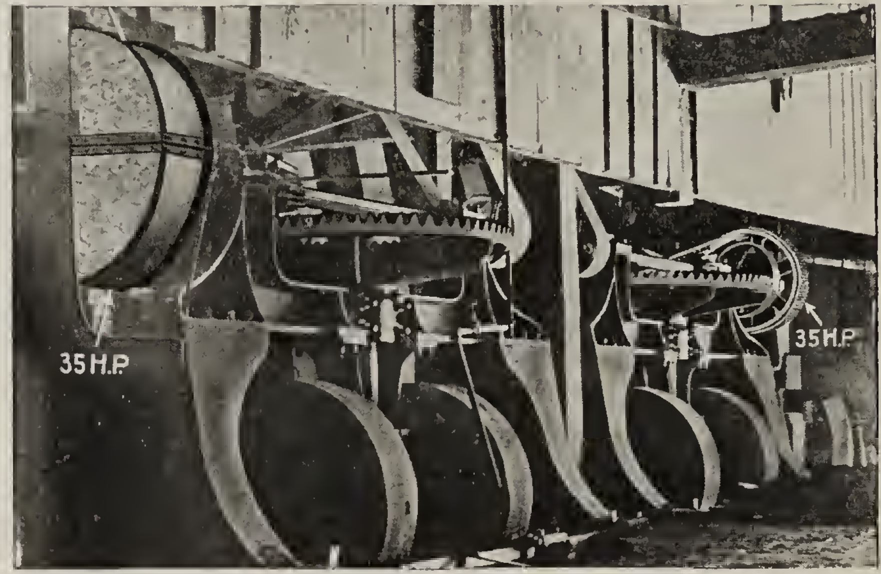
Six or seven years ago we installed a lot of motors at one of our plants, **direct connected** to our dry pans. **Because of the excessive vibration** on these pans, we found that we could not thus drive them. We then put in silent chain, manufactured by your Company, and since that time have had positively no difficulty. There is no shock on the motors, due to the chain, and we have had no motor trouble. This is no doubt due to the flexibility of the chain.

Yours truly,
(Signed) John J. Starr,
Secretary.

The Link-Belt Silent Chain Drive

has solved the problem of applying electric power in brick and clay plants, because it absorbs all shocks before they reach the motor, thus eliminating any possible damage to motor or machine. Electric power with the Link Belt drive gives greater production at a lower cost of operation. We can cite you any number of clay plants to prove this contention.

Just a glance at this photograph should convince you.



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You should think of

Link-Belt Silent Chain

as a flexible gear—that's really what it is. It gives that positive action you get in a gear, yet it is so flexible that it readily adapts itself to variable speeds without the slipping so common to belts or the shock of gears. It has proved its superiority over both gears and belts in connection with electric drive for

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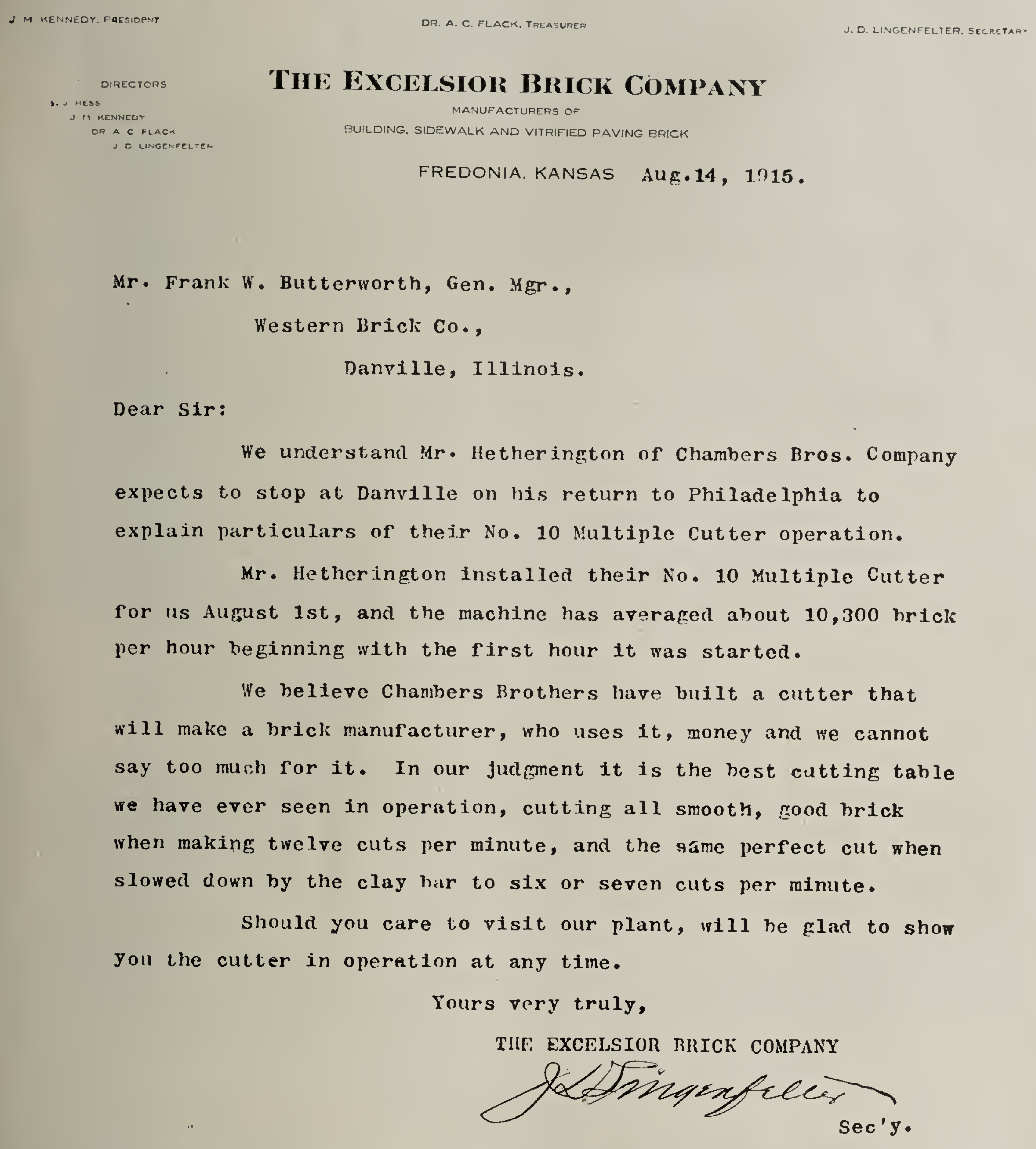
Read what one user of Chambers No. 10 Multiple Cutter says



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MANUFACTURERS OF
BUILDING, SIDEWALK AND VITRIFIED PAVING BRICK
FREDONIA, KANSAS

Aug. 14, 1915.

Mr. Frank W. Butterworth, Gen. Mgr.,
Western Brick Co.,
Danville, Illinois.

Dear Sir:

We understand Mr. Hetherington of Chambers Bros. Company expects to stop at Danville on his return to Philadelphia to explain particulars of their No. 10 Multiple Cutter operation.

Mr. Hetherington installed their No. 10 Multiple Cutter for us August 1st, and the machine has averaged about 10,300 brick per hour beginning with the first hour it was started.

We believe Chambers Brothers have built a cutter that will make a brick manufacturer, who uses it, money and we cannot say too much for it. In our judgment it is the best cutting table we have ever seen in operation, cutting all smooth, good brick when making twelve cuts per minute, and the same perfect cut when slowed down by the clay bar to six or seven cuts per minute.

Should you care to visit our plant, will be glad to show you the cutter in operation at any time.

Yours very truly,

THE EXCELSIOR BRICK COMPANY

J. D. Lingenfelter
Sec'y.

CHAMBERS BROTHERS CO., Philadelphia, Pa.

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By FREDERICK SQUIRES

is a book every prospective home-builder should have. No amount of planning, however extensive, for that new home is complete without considering this new type of building material made from burned clay.

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Chapter III.....................................About Construction
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BRICK AND CLAY RECORD

CHICAGO

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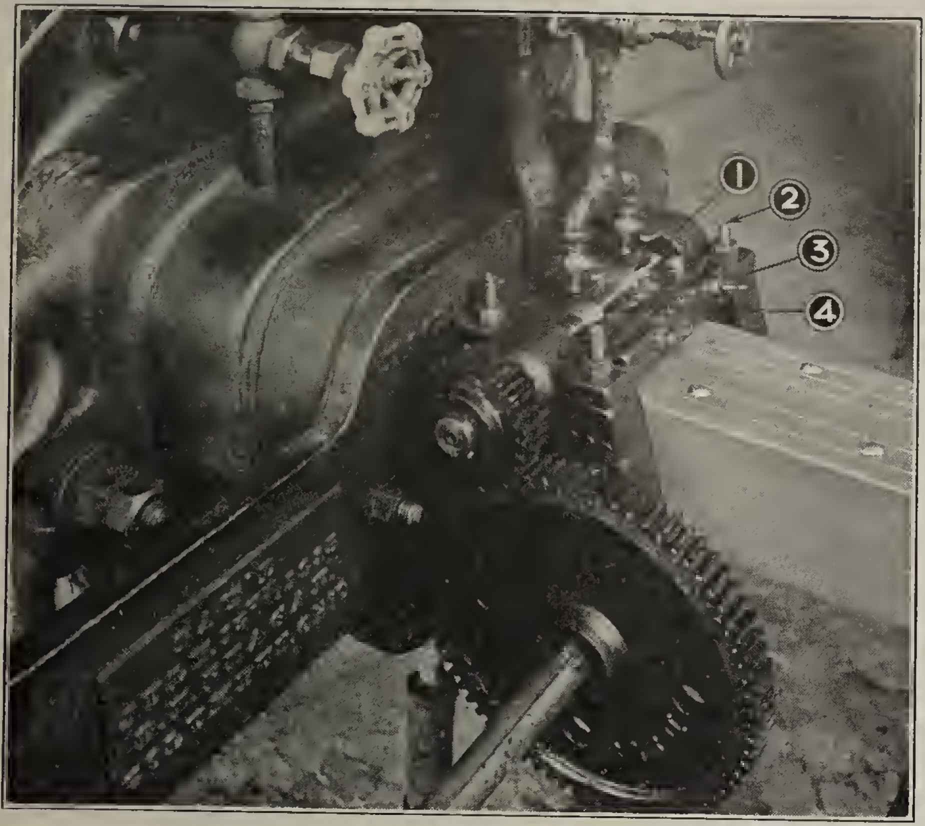

Separating lugs (any shape desired).
Interlocking groove for grout.
Ideal square corners (round if wanted).
The most perfect paver made complete in one continuous operation in the Reagan patent integral roller die. Can be readily attached to any Stiff-Mud Brick Machine.
Is sprocket driven from table to cutter.
Every brick and lug and groove perfectly formed within die.
No deforming of clay after leaving die.
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Less chance for lamination than any other method.
Increased production at reduced cost.
Each brick has two perfect faces.
Can be used for face brick or backing up.
No further excuse for culls on yard.

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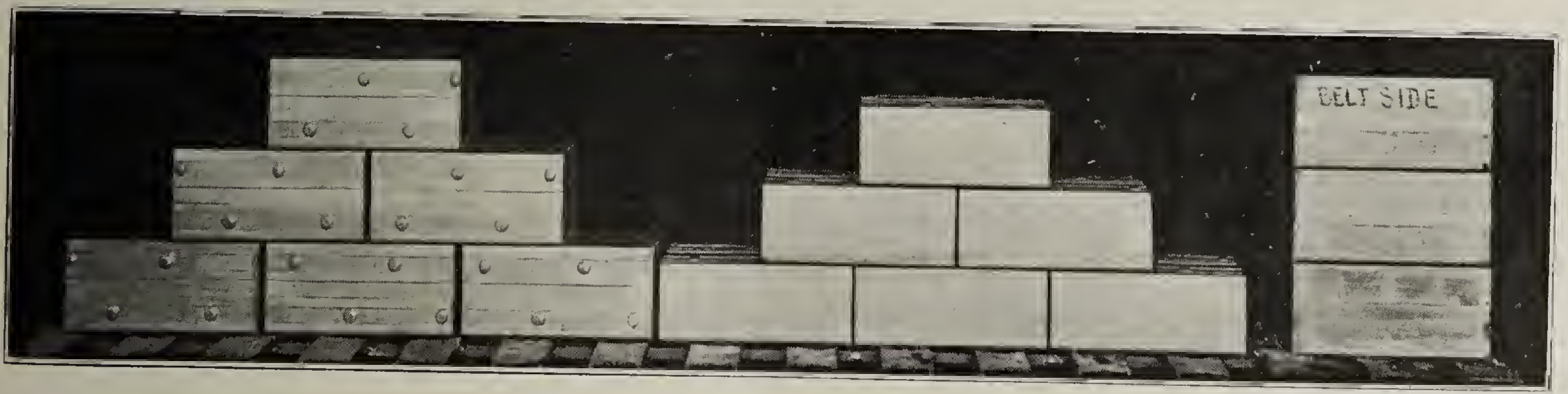
Best—Test



License and machine very reasonable

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SAY "I SAW IT IN" BRICK AND CLAY RECORD

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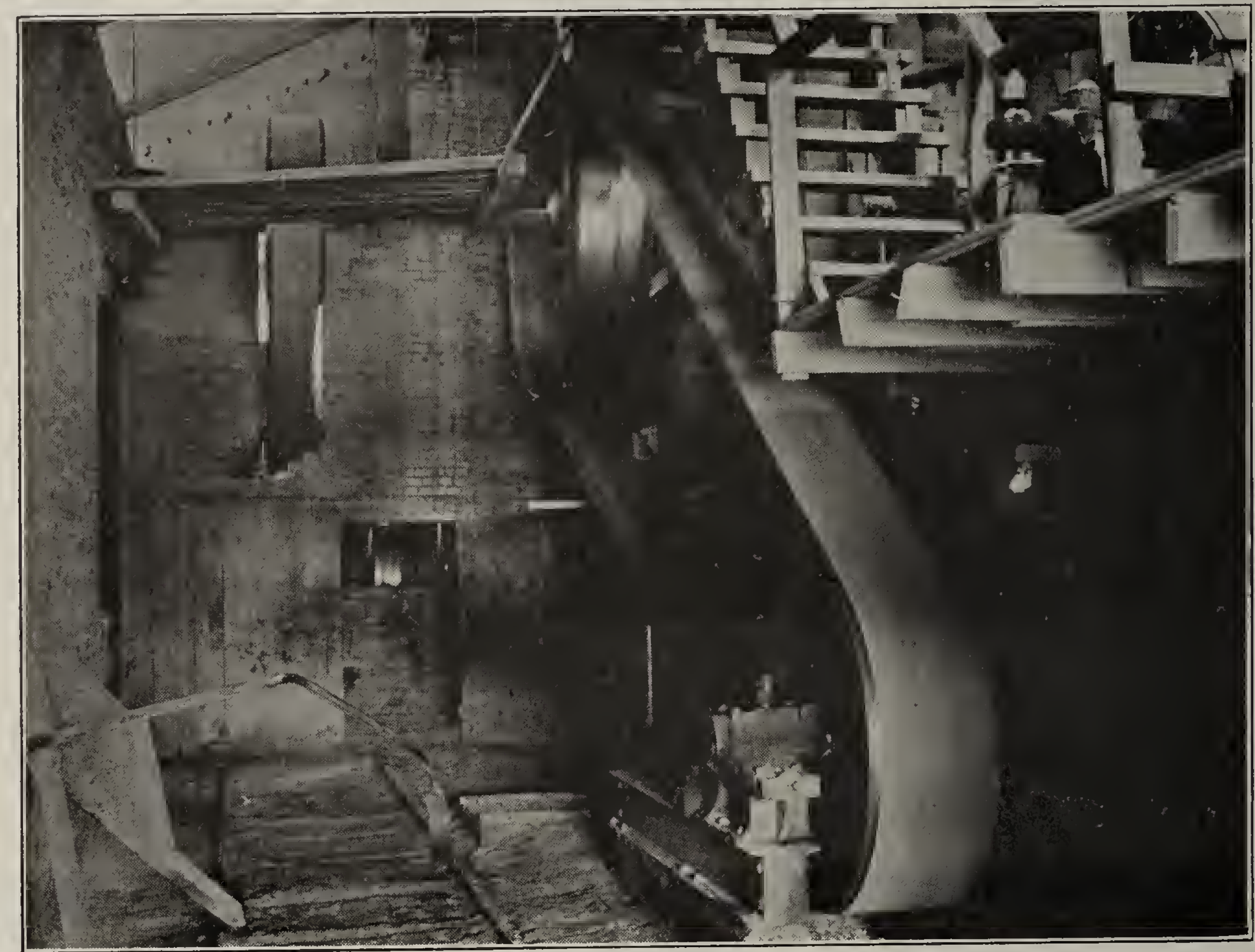
The Belt for the Brick and Clay Plants

ILLUSTRATION SHOWS:

52 feet of 12-inch "SCANDINAVIA" used on a brick machine in one of the largest brick plants in Ohio. "SCANDINAVIA" has been in operation 2½ years—the best service ever received from stitched canvas was 1 year.

Space does not allow us to enumerate many such instances.



Why "SCANDINAVIA" is better—

Has no plies—no stitches—no laps—better gripping power—drives more horsepower—has greater strength—is absolutely uniform—not affected by steam, water, oil or dust. Most economical, considering service

Note: In same plant above mentioned, "SCANDINAVIA" working on a dry pan drive has been in service 4 years—whereas rubber lasted but 1½ years.

Write our nearest Branch.

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BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

Published on the First and Third Tuesdays in Each Month by the

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Chicago, October 19, 1915

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

A FEW WEEKS AGO, an association of face-brick manufacturers met at Columbus, Ohio. The principal speaker had for his subject the "Buy-at-home" propaganda that comes to light, every once in a while, in various parts of the country.

What he said is set forth, in part, on another page of this magazine. The fact that he opposed the "Buy-at-home" principle is worthy of comment.

During the past four or five years, in widely scattered cities and at various seasons of the year, some promoter, having taken for his text "Made in Chicago"—or Louisville or Pumpkin Center, as the case may be—has induced the merchants to display "home-made" goods and, as a sop to the local press, to buy increased advertising space.

The "Buy-at-home" appeal is in the same class as the ordinary municipal slogan. It is selfishness and bigotry epitomized.

The goods are not better made nor do they give better value for the money because they are produced in—for instance—Chicago; and if this be true of a great manufacturing center where raw materials are easily obtained, how much nearer to gospel is it when attached to some municipality less fortunately situated.

"Buy-at-home" endeavors to coin sentiment into dollars. It narrows patriotism, so that instead of being a citizen of these great United States, a man is asked to consider himself as an inhabitant of a comparatively small dot on the map and arrayed against the balance of this broad land.

Were it not so pathetic, it would have found its way, long since, into the comic papers.

Aside from the fast disappearing fad for "imported" products, the average man does not care whether his food, his clothes, building materials, or mechanical pianos come from one part of the world or another.

He seeks good value for the price he is asked to pay and, if a certain product is made in his home town, he expects to buy it at cost, plus a fair profit, and without any freight being added.

That is the "edge" that home-made products have on similar commodities produced in other cities. The "edge" is dulled when the home manufacturer produces goods that are inferior to those made at some near or distant point, or, producing equal quality, asks a higher price and so "absorbs" the freight—which is by way of saying that he "soaks" his neighbor.

Turning the "Buy-at-home" and "Made in Blankville" slogans inside out, we find that they ask a man to buy as much as possible from his neighbor, ignoring personal taste and judgment, and only purchasing, outside of an artificially circumscribed territory, those things which are not produced at "home." It presages that the home manufacturer needs protection—that he is not as good a manufacturer or as good a businessman as someone in a similar line operating in a neighboring city.

The "Buy-at-home" people are very willing to ship away from home and to take their chances in the "home" markets of other manufacturers. Were it not for this fact, all of the "Buy-at-home" propaganda would do very little to perpetuate illy managed and badly equipped factories.

To Stop Car Shortage

Commercial reports tell us that there are 25,000 fewer empty box cars available at the present time than were ready to receive shipments at this time last year. Without going into elaborate statistics, the fact remains that a car shortage impends and will become more and more acute as the season remains open.

The Interstate Commerce Commission has made definite rules regarding the "free time"

The Editor's Corner

to which a shipper is entitled, both for loading and unloading his cars. It has made it obligatory upon the railroads to charge demurrage upon all cars held beyond the "free time" limit.

This "free time" is the result of a compromise. It has been claimed, and rightfully, that any attempt to make it shorter will injure certain shippers, penalizing them beyond reason for conditions they cannot control.

Because these men manufacture a product which takes a great deal of time to load and unload, the lessening of their burden affords a loop-hole for dilatory tactics on the part of men manufacturing commodities which can be loaded and unloaded in a much shorter period.

The "free time" is, in many cases, as long as the time actually consumed in the transit of the car from its shipping point to destination.

No one engaged in manufacturing and shipping, or receiving burned clay wares, would care to see a new ruling on "free time" for freight cars; at the same time, clayworkers know to their sorrow how much the annual car shortage costs them.

One thing that they do not know is, that their own carelessness helps to aggravate the situation. If every shipper of burned clay ware would aim to load as rapidly as is humanly possible, the number of available freight cars would be materially increased.

If every dealer in, or other receiver of burned clay products would unload in twenty-four hours after the car's receipt, instead of forty-eight, a still greater increase would be made.

This one movement—in one industry—would more than half relieve the car shortage that comes, each year, when the crops move.

Watch a car being loaded or unloaded with grain and then think of the way the average clayworker loads and unloads his cars. Which industry shows a desire to help itself by speeding up when occasion requires?

Why Apologize? The man who apologizes for the industry in which he is engaged, or for his plant or product, or for himself, makes the mistake of his life.

He advertises his own shortcomings, points to the poor quality of his product and then blames both on his competitor, who, the world knows, has troubles of his own.

Your friends believe in you. Your enemies believe against you. Why weaken the first and strengthen the other? Go ahead and do your best. If you make a mistake, take a hitch in your belt and give an imitation of a good Indian, who cannot explain, or excuse or even promise a better performance.

The clayworkers of the nation are the builders of a great and wonderful country. They pave its broad highways, protect its people from fire and storm, sun, rain and frost. Without them there would be no steel, no cement, no glass, no gold, no enduring civilization.

To be one of the Great Clay Family is to be a craftsman in the oldest industry known to mankind.

It is to be a lineal descendant of those hardy workers in the claypits before Babylon, whose handicraft has come down to us from the dawn of man's history.

Your Greatest Waste Is in Burning

In this issue—on page 591—appears the first installment of an article by C. O. Arbogust, Cr. E., on the control of temperatures in down-draft kilns.

If You Control the Temperature, You Cut the Waste!

Claude C. Blair

Of Youngstown, Ohio, Elected President of

Paving Brick Assn.

Succeeds to Office Held Four Years by Charles J. Deckman, of Cleveland

EDITOR'S NOTE: One hundred and twenty-three paving-brick manufacturers and others interested in permanent highways, registered at the Twelfth Annual Convention of the National Paving Brick Manufacturers' Association, held at Dayton, Ohio, October 11, 12 *and* 13. *A complete list of those who attended will be found on page* 586, *in this issue.*

CLAUDE C. BLAIR

Secretary and General Manager of the Bessemer Limestone Company, of Youngstown, Ohio. Elected to the Presidency of the National Paving Brick Manufacturers' Association

BRICK STOLE A MARCH on all competing materials when, marshalling its hosts under Charles J. Deckman of Cleveland, it came (to Dayton, Ohio), saw, and conquered the convention of the American Society of Municipal Improvements. Early strategy brought that convention to a brickmaking and brick using territory, and altho the opposing forces of macadam, asphalt, "Durax," granite block, creosoted wood and cement all put up a feeble resistance, the victory was complete. Paving brick had the advantage of selecting its own battle ground and was firmly entrenched and fortified before the enemy's scouts found out what was being done.

As in one or the other "theatres of war" that are so frequently mentioned in the daily papers, the commanding general of the paving forces was relieved of his charge (by his own request) just prior to the final capitulation and the convention of municipal engineers surrendered to a paving brick army led by the newly elected president of the National Paving Brick Manufacturers' Association—Claude C. Blair, of the Bessemer Limestone Company of Youngstown, Ohio.

The dual convention was the first to be entertained at the new Miami Hotel in Dayton. After a close race between the calendar and the decorating contractors, the hotel was formally opened on Saturday, Oct. 9th and the convention started Monday, Oct. 11th. It is a question whether the holding of conventions in hotels that are so new as this, is wise. Even where the machinery has been worn down to the point of best efficiency, hotels are very seldom able to give convention guests as good treatment as is accorded the traveling public in ordinary times. It is manifestly impossible to do this with a hotel newly opened. A month from today the Miami Hotel will be able to care for a convention of about half the size of that which has just closed. As it was, the four hundred or more registered at the American Society convention, together with about one hundred and twenty who signed their names to the roster of the National Paving Brick Manufacturers' Association, literally swamped the hotel.

THE FIRST DAY'S SESSION

Early in the forenoon of Monday, the 11th, the twelfth annual meeting of the National Paving Brick Manufacturers' Association was called to order by its president, Charles J. Deckman. In his opening address he said:

"The past year has been an unusual one in many respects so far as it relates to the paving brick industry. It has been uneventful so far as any special accomplishments of the association are concerned—so far as events have come to my knowledge. The usual routine work of the association, through its officers and an efficient office force, has been far above the high standard of former years; but the industry, as a whole, does not seem to me to have had that prosperity which it has enjoyed for the past several years.

"Whether the European war has—either directly or indirectly—had anything to do with trade conditions as they have existed during the greater part of the year, may be a debatable question. Suffice it to say, however, our own internal war, not alone among our own membership but with many of those manufacturers who are outside of our membership—and there are many such—has been exceedingly destructive of financial benefits. It is to be regretted that so large a number of manufacturers of paving-brick will remain outside of our association—sapping our life blood and energy that has been given for the betterment of the industry—without so much as contributing a 'thank you'—let alone any revenue for the general benefit of the industry as a whole. This associa-

A Few of the Permanent Roads Enthusiasts Who Attended the Dual Convention of the American Society of Municipal Improvements and the National Paving Brick Manufacturers' Association

tion is spending its money, its energy, its education—for better construction, and the development of business—of which these manufacturers receive a large part.

"Were I to express myself in language fitted to my thoughts on this subject, this report could not pass through the mails. The smallest of these fellows (an Ohio River manufacturer) says: 'Why should I join the association and pay into its treasury for its support? I would be a fool to do so. They spend their money developing the increased business and I take the orders without any cost to me.' I do not know that the statutes would define such acts as larceny, but some remedy at law should be provided to punish persons who possess all of the qualifications of the common thief.

"Under these trying conditions it should become our sacred duty to redouble our efforts and to declare our loyalty to the association and its membership and to more closely band ourselves together for the success of each, and of the association. In our relations with the outside manufacturers and in meeting their endeavors to obtain business that is being developed by our association, if a little concerted as well as individual effort be taken, it will develop men (if manhood yet remains) or it will have a crushing effect upon them—such as manufacturers of their type deserve.

"I am one of those ready to apply severe, drastic methods where sound business ideas and judgment—through persuasion—cannot prevail; but whatever may be your judgment of this subject, do not permit your loyalty and zeal for our association to decrease, but declare yourselves men of intelligence, men of integrity, men of loyalty and men of honor. Such men are fit companions to be associated with and you honor yourselves and the industry in such business relations. May I ask—do each of you want to measure up to such a standard? If you do, follow the command.

"The most important accomplishment of the association, during the past year, has been the successful publication of 'Dependable Highways.' Too much praise cannot be given to Mr. H. H. Macdonald in his efforts and labors in making this publication a pronounced success, and I shall refrain from any further reference to it, leaving to him the honor of a report on this most interesting accomplishment.

"And now, brethren, we come to the close of another official year in the association's history. I have repeatedly requested permission to retire from the presidency of the association and I sincerely hope that you will comply with my wish at this meeting. I have been honored more than I deserve. I have been unselfishly faithful to my trust as I have seen it. I have endeavored to be honest and fair with every member and every interest. I have done the best that I could. If mistakes were made, they were of the head and not of the heart, and

The Head of the Procession of More than Forty Cars Used in the "Seeing Dayton" Trip

The "Hills and Dales" Clubhouse, Where Luncheon Was Served to the Engineers and Paving Brick Men

I appeal to you to accept this as a definite request for my official release."

THE WORK OF THE ASSOCIATION

Will P. Blair, veteran secretary of the association, then delivered an address in which the work of the association was graphically described. This address is reproduced in its entirety and should commend itself to every manufacturer of paving brick. Following as it did the report of the retiring president, it created a sensation and since it answers, to some extent, the question, "What does the association do for us?" it is worthy of careful reading and thought. Mr. Blair said:

"A very wise statesman has said that you must educate the world in sense before you can appeal to reason. Wherever the National Paving Brick Manufacturers' Association has found existing sense to which to make appeal, it has endeavored to show that the merit of paving-brick is sustained by the strongest of reasons. Another philosopher says that a good kick sometimes starts a stone rolling down a mountain side that otherwise might remain embedded there for generations.

"We therefore have endeavored to arouse the public interest in every way possible. The association has recognized that the educated and thinking people of the country exercise a vast influence over others. We have sought to interest this class of people in the merit of paving-brick, knowing that their influence extends downward in the scale through the masses of the entire population.

"This influence is found in the colleges of the country; it is found among the leading engineers of the country; it is found among the leading writers upon questions of domestic economy; it is centered in the engineering organizations; in the civic bodies; chambers of commerce; business organizations; among those promoting public, social, business and personal welfare; and all of these influences we have tried industriously to cultivate. Such influences we have regarded as exercising a great weight when activity is exercised toward actually choosing a form of pavement.

"This association has been instrumental in establishing highway courses in a number of states and has exercised a more direct influence in persuading all the leading institutions of the country carrying civil engineering departments to give special lessons upon brick street pavements. We have endeavored to be alert in the discussion of questions of construction arising from time to time by furnishing the technical and trade magazines with all the information at our command. Equal attention has been given to the writers of books by aiding them and assisting in every way possible toward accuracy of facts concerning the manufacture and use of paving-brick. We have tried to halt campaigns purposely instituted to prejudice against brick as well as to inspire in every direction possible, correct and favorable information. The monthly, daily and weekly press has been used upon every available occasion. The business man who is looking to make a sale tomorrow morning does not then see that such a sale would be possible, if the perspective of public favor had not been well arranged, many days or weeks or even months ahead. Nevertheless, we readily realize that but for such preparation in the public mind a sale never would be made at all. These avenues toward molding public opinion must be traversed again and again.

OFFICERS OF THE AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS
From Left to Right: A. F. Macallum, Hamilton, Ont., A. P. Folwell, New York, N. Y., Wm. A. Howell, Newark, N. J., E. A. Kingsley, San Antonio, Tex., C. C. Brown, Indianapolis, Ind., E. A. Fisher, Rochester, N. Y., F. J. Cellarius, Dayton, Ohio, M. R. Sherrard, Newark, N. J., E. L. Dalton, Dallas, Tex., and E. H. Christ, Grand Rapids, Mich.

"An entirely different effort to influence the use of paving-brick has been a direct and personal one. The work itself is not so invisible. It is more clearly seen, and yet I doubt if it is so valuable, but it is conducted by individual correspondence, distribution of literature mailed and delivered to the individual, and by personal solicitation. Such work by correspondence reaches a wide area of personality. It covers all phases of the question, from why a brick should be used, to how it should be used for paving purposes. It extends to the Mayor, to the Board of Public Improvements, to the engineer and to the humble taxpayer, who sometimes exercises but a single voice in the choice of pavements. It involves a variety of letters, calling for the full measure of diplomacy, to the shortest answer of 'yes' or 'no.' It is sometimes extended to every property owner on a street, and again to the single powerful man of influence. Sometimes a campaign results in a steadfast adherence to brick. Sometimes the battle is lost. Sometimes it is a draw. Sometimes there is opened up to you a condition of public depravity that influences you to turn away in disgust, but sometimes again, the virility of the high standard of those with whom you are dealing makes your work a pleasure.

"It is a strange thing to say, but it can be truthfully said, that where honesty and integrity and a high moral standard obtains in a community, paving-brick is almost certain to be found. We cannot say that all communities favoring other material are bad and dishonest, but we can say, with a large measure of truth, that the communities favoring paving-brick are not only honest, but they are unquestionably intelligent.

"We cannot include in this report the details of all of this work. If we did, it would be but to do the work over again in your presence—which would be impossible.

"Nor can we report to you in detail the work that the Association performs through the invisible but powerful sources of influence, the 'higher-ups' of which we have spoken.

"It is, however, most gratifying to acknowledge the cooperation that is extended to us in our work in various ways. May I indicate specifically: We have several sets of lantern slides that are loaned out to persons who take upon themselves the task of educating their neighbors and their communities in the use of paving-brick. Requests of this sort come from public spirited taxpayers of communities, secretaries of business organizations, from college professors, whose spheres of activity cover the country from Maine to California.

"Requests come from officials of organizations charged with publicity work to use our plates, our data and material which we have in hand. A request of this sort came to us, ending with the words 'Help us and incidentally help yourselves.' In all our work we are compelled to recognize the power and resourcefulness of our competitors. They out-number us numerically and in financial strength but in spite of many hotly contested fields we lay reasonable claim to better work, our numbers and financial size considered.

"We might discuss in this report, many phases of the work of the National Paving Brick Manufacturers' Association. Rather as a substitute for this and by way of recommendation, we earnestly solicit a visit by each member respectively of one entire day to the headquarters of the National Paving Brick Manufacturers' Association. The very suggestion seems to me to carry with it its importance. It enables you to become familiar with the work that is being done in your interest. It would enable us to gather from you ideas that will make for efficiency in your behalf.

Homeward Bound from the "Hills and Dales" Club

"Our only other recommendation at this time is in behalf of an increased value, worth and assistance to our publication,—'Dependable Highways.' It is the belief of the Office Board that in some way its expense should be lessened by its acceptance by the Government as second class mail matter. We believe that this could be secured by a resolution of this association to the effect that one-twentieth of the yardage levy for 1916 be applied to the subscription of such list of persons (to be named by the members) to whom the 'Dependable' shall be sent during the year. This would not entail any additional burden upon our membership. It would be equivalent to setting aside a certain sum for that purpose and would enable us to perfect the 'Dependable' mailing list to such an extent that we believe but few if any manufacturers of paving-brick would longer remain out of the Association. In any event, it will enable us to place it in the hands of certain persons who should receive the 'Dependable' every month in the year.

"This would enable us to mail each month, 'Dependable Highways' addressed personally to such number of persons in several states respectively, which would result in a powerful influence, much beyond the expense incurred.

"Let me illustrate by taking for instance what would be possible for the State of Indiana: County Commissioners, 276; county surveyors, 92; county attorneys, 92; township trustees, 920; mayors, 100; city engineers, 100; miscellaneous list, 100; total, 1,680.

"The carrying out of this resolution could not be made to apply of course, until after the expiration of the calendar year, but it could be made to apply in 1916.

"In every detail of the work, varied and insistent as it has been, we have had the most unselfish support of the Office Board, namely: Messrs. C. J. Deckman, C. C. Blair and J. G. Barbour, by their advice, counsel and direction.

"We have tried to keep in view the interests of the industry that are common and vital to all, allowing no diverse or selfish interest to distract, thus giving to individual interest the

The "Office Force" of the N. P. B. M. A.

largest value after all, for no greater truth was ever uttered than that quoted on our program, that 'Money spent competitively is spent largely in a fight for existing business, but money spent co-operatively will develop new and additional business.' "

THE NEED OF AN ASSOCIATION HOME

H. H. MacDonald,—"Mac" to the world—brought two issues fairly before the convention. One was the necessity of the Association's erecting its own building—a business structure worthy of the industry—and the equal necessity of giving publicity to the names of the members of the association, who, by their contributions, make the Association's work possible.

Mr. MacDonald said:

"We meet with perhaps more distinct cause for congratulation than at any time in the last eighteen months. The long heralded return of prosperity is now so far advanced as to be unmistakable, with many indications that America is due for one of those periodical booms which means so much to constructive enterprise.

"While we have been hampered by business depression we have by no means been losing time. The repute of brick paving is better and wider spread today than ever before and it would seem that in 1916 the demand for good streets and roads will be more imperative than in any previous period. As evidence of this we may cite the fact that the industry least affected by depression has been that of manufacturing automobiles and trucks. Disregarding that portion of this product that has been shipped abroad, there is still ample assurance that Americans are relying more and more upon power vehicles and that they will demand the kind of highways which permit power vehicles to utilize their full efficiency in tonnage and speed. The bad road and the bad street will have to go. We find counties resorting to wholesale improvement programs. We find cities abandoning piecemeal methods of road improvement and securing comprehensive reports of what is needed to make every square foot of highways surface available for traffic.

"The Association has not been idle, as you know. Our work is not restricted to tomorrow's harvest or next week's. We follow the theory that good impressions of our product, gained through consistent advertising, constantly bear fruit. Consequently the effect of our publicity, even in a season of comparative depression, is cumulative. It is entered to our credit in the bank of public opinion and we can draw on it when conditions are right.

"We have always felt that the average member of the Association would be stirred to even greater enthusiasm if he could come into daily contact with the things which the Association office is doing. My task, therefore, in the time allotted to me, is to give you a few snapshots of the working of our organization and to show how a greater measure of co-operation will bring about proportionately greater results.

"Even our simplest routine is worthy of a word of reference. Routine methods of promotion through form letters,

One of Dayton's Best Brick Paved Streets. Wire-cut-lug Hillside Block are Shown at Left etc., are productive of results on the law of average. We cannot foretell in what particular instance sales of brick will ensue but we are justified in assuming that a certain proportion of letters, backed up by literature, will bring results. These results, are, of course, dependent upon our skill in preparing this matter. For example, every construction report that reaches us through any channel (and these embrace lists of property holders from salesmen on the road, newspaper clippings, and daily sheets from engineering journals) is immediately followed up with letters and literature. In going over results we have been struck with the fact that brick is making the most headway in localities where the circularization has been most persistent.

"The mailing of printed matter to inquirers is a matter of daily work. It is not unusual to send out two or three hundred letters and packages of literature on a single day.

"The need of entertaining visiting engineers and officials is so nearly a matter of routine as to occupy a considerable portion of the time of the office force. Here is the ideal opportunity to impress visitors with the merit of our product and to iron out the apparent difficulties which confront them. The increasing mileage of brick pavement in and around Cleveland make it a good place for this kind of promotional work. The home atmosphere of Cleveland can be enchanced however, from a brick standpoint, by the erection of a fitting Association building of brick on some appropriate site in which to accommodate our Association activities.

"Nothing impresses like the atmosphere of success and permanence. Our visitors leave Cleveland full of the fact that Cuyahoga County contains something like 1,500 miles of urban and suburban brick pavement. They feel that there can be nothing experimental about a proposition so thoroughly entrenched in public esteem. The Association can enhance its own air of stability and responsibility by a building which shall, in itself, advertise the versatile qualities of vitrified brick. We have urged this proposition before. Reflection makes us more and more enthusiastic on its behalf.

AN ASPHALT FILLER BETWEEN TWO BRICK
John R. Copeland, E. J. Devine and John W. Sibley, all of Birmingham, Ala.

"If there is anything to regret in the result of our activity it is the fact that our benefits have been so evenly distributed over the paving industry. Like rain it falls upon the just and the unjust, the member and the non-member. We do not wish the non-member any hard luck, but God bless him, he ought to join. Sometimes he boasts that he gets all the good of association membership and pays out nothing. Men who support their wives without quibbling and who would scorn to play lame-duck when the treats are being passed, nevertheless take pride apparently in the good they can sponge from the National Paving Brick Manufacturers' Association.

The Brick Paved "Cincinnati Pike"

"We recommend that we cease coddling this type of manufacturer and draw the line more sharply between those who stand behind our highway propaganda as an organized force and those who do not. We cannot blacklist the latter but we can whitelist the former.

"Individual mention of members in connection with association advertising is the first practical distinction in this step. We believe the repute of the association to be such that a brickmaker whose name does not occur in our published list will have some explaining to do to engineers and officials, either in regard to his personal responsibility or his product.

"As to 'Dependable Highways'—it has proved a continual avenue to inquiries from prospective users of brick. It comes regularly, month after month, to the desk of the man who is interested, carrying a variety of popular information upon road questions and quietly directing his attention toward progress of the brick idea in the highway world. It gives the association a chance to speak when it wishes to make its views authentically known. It gives opportunity to gather the thought of a variety of minds on debatable questions. It aims to be interesting and, through the interest aroused, to work up a gradual receptive attitude toward our product.

"'Dependable Highways' aims to interpret the highway aspirations of its constituency with accent on the good side and a soft pedal on the bad. What it might say in criticism of our rivals, no matter how sincerely, would be discounted

(*Continued on Page* 616)

The Roster of the National Paving Brick Manufacturers' Association Convention

Held at Dayton, Ohio
October 11-13, 1915

Will P. Blair—Secretary, N. P. B. M. A., Cleveland, Ohio.

F. W. Lucke—F. W. Lucke & Co., Chicago, Ill.

F. L. Manning—Peebles Paving Brick Co., Portsmouth, Ohio.

F. W. Donahoe—Editor, Brick & Clay Record, Chicago, Ill.

Chas. J. Deckman—President, N. P. B. M. A., Cleveland, Ohio.

W. R. Barnhart Jr.—Wooster Shale Brick Co., Wooster, Ohio.

J. G. Barbour—Metropolitan Paving Brick Brick Company, Canton, Ohio.

G. E. Carlyle—Carlyle Paving Brick Co., Portsmouth, Ohio.

D. L. Edwards—Carlyle Paving Brick Co., Portsmouth, Ohio.

E. W. Ellis—O. P. B. M. A., Dayton, Ohio.

G. B. Wilcox—Alliance Clay Prod. Co., Alliance, Ohio.

Roy C. Wallis—Bessemer Limestone Co., Youngstown, Ohio.

J. W. Robb—Clinton Pav. Br. Co., Clinton, Ind.

C. C. Blair—Bessemer Limestone Co., Youngstown, Ohio.

Spencer M. Duty—Deckman-Duty Brick Co., Cleveland, Ohio.

F. R. Kanengeiser—Bessemer Limestone Co., Youngstown, Ohio.

J. R. Rowland—Bessemer Limestone Co., Youngstown, Ohio.

H. M. Terrell—Cleveland Stone Co., Cleveland, Ohio.

G. F. Atkins—Cleveland Stone Co., Cleveland, Ohio.

T. A. Geiberson—Cleveland Stone Co., Cleveland, Ohio.

Chas. G. Deckman—Deckman-Duty Brick Co., Cleveland, Ohio.

G. E. Bierer—Burton-Townsend Co., Zanesville, Ohio.

G. O. French—Big Four Clay Co., Canton, Ohio.

G. B. French—Lincoln Pav. Block Co., Canton, Ohio.

G. H. Francis—United Brick Co., Greensburg, Pa.

Herbert C. Moetz—Deckman-Duty Brick Co., Cleveland, Ohio.

C. W. Denniston—Deckman-Duty Br. Co., Rochester, N. Y.

W. C. Perkins—Dunn Wire-Cut-Lug Br. Co., Conneaut, Ohio.

Joseph P. Bayne—Engineer of Paving, Cleveland, Ohio.

F. L. Stowell—Sterling Brick Co., Olean, N. Y.

F. B. Dunn—Dunn Wire-Cut-Lug Br. Co., Conneaut, Ohio.

R. Keith Compton—Chairman, Pav. Com., Baltimore, Md.

W. C. Taylor—Sharon Clay Prod. Co., Sharon, Pa.

J. O. F. Clark, Jr.—Amer. Manganese Steel Co., Chicago, Ill.

S. D. Knight—Ohio Quarries Co., Cleveland, Ohio.

C. W. Raymond—C. W. Raymond Co., Dayton, Ohio.

George D. Steele—Better Roads and Streets, Philadelphia, Pa.

John H. Simpson—Trimble Paving Brick Co., Dayton, Ohio.

Claude W. Filer—Detroit, Mich.

J. D. Morris—Metropolitan Pav. Br. Co., Canton, Ohio.

A. R. Root—Chambers Bros. Co., Philadelphia, Pa.

J. E. Connelly—Trimble Pav. Br. Co., Dayton, Ohio.

John A. Qualman—Saginaw Pav. Br. Co., Saginaw, Mich.

J. Horace Lytle—Better Roads and Streets, Dayton, Ohio.

James H. Van Buren—American City, New York City.

Frank T. Townsend—Dunn Wire-Cut-Lug Br. Co., Buffalo, N. Y.

F. A. Churchill—Dunn Wire-Cut-Lug Br. Co., Conneaut, Ohio.

D. E. Reagan—Hocking Valley Prod. Co., Columbus, Ohio.

G. A. Anderson—The J. D. Fate Co., Plymouth, Ohio.

F. L. Hopley—American Clay Machinery Co., Bucyrus, Ohio.

L. H. Haigh—American Clay Machinery Co., Bucyrus, Ohio.

David B. Gibson—Brick and Clay Record, Chicago, Ill.

S. C. Haines—Main Belting Co., Chicago, Ill.

R. L. Lewis—Athens Brick Co., Athens, O.

Chas. H. Frank—Nelsonville Brick Co., Columbus, Ohio.

W. H. Parks—Nelsonville Brick Co., Nelsonville, Ohio.

W. A. Meddick—Lakewood Engineering Co. Cleveland, Ohio.

B. E. Briggs—City Engineer, Erie, Pa.

O. N. Townsend — The Burton-Townsend Co., Zanesville, Ohio.

C. W. Baker—Trimble Pav. Br. Co., Dayton, Ohio.

Nathan C. Rockwood—Associate Editor Engineering News, New York City.

Jesse Taylor—Editor, Better Roads and Streets, Jamestown, O.

J. C. Kline—John Kline Brick Co., Cleveland, Ohio.

A. B. Kline—John Kline Brick Co., Cleveland, Ohio.

R. H. Danforth—John Kline Brick Co., Cleveland, Ohio.

W. N. Alderman—Athens Brick Co., Athens, Ohio.

C. U. Hendershot—Cleveland Br. & Clay Co., Cleveland, Ohio.

N. C. Ralph—Ashtabula Shale Br. Co., Ashtabula, Ohio.

Ray N. Case—County Engr., Ashtabula Co., Ashtabula, Ohio.

T. P. Fitzgerald—Contractor, Ashtabula, O.

L. A. Amsden—City Engineer, Ashtabula, O.

W. J. Whitworth—Youngstown, Ohio.

E. P. Foster—Bessemer Limestone Co., Youngstown, Ohio.

John W. Sibley—Secretary, S. P. B. M. A., Birmingham, Ala.

C. A. Divine—Indestructible Sign Co., Columbus, Ohio.

Fred R. Williams—Engr. Cleve. Pav. Brk. Mfrs., Cleveland, Ohio.

Fritz Reich—Cleveland, Ohio.

Robert L. Beck—Newburgh Br. & Clay Co., Cleveland, Ohio.

M. M. Morrow—Hocking Valley Br. Co. Columbus, Ohio.

Wm. H. Luchtenberg—Hocking Valley Br. Co., Columbus, Ohio.

George W. Warmdof—Wood Block Bureau Indianapolis, Ind.

H. S. Atkinson—Columbus, Ohio.

J. E. Kennedy—Civil Engineer, Marysville, Ohio.

James R. Marker—O. P. B. M. A., Columbus, Ohio.

Wm. R. Schoonover—Engineer, Indianapolis, Ind.

E. J. Mellen—Cleveland Alloys Co., Cleveland, Ohio.

J. B. Nicholson—Toronto Fire Clay Co., Steubenville, Ohio.

F. Lawson Moores—Harris Brick Co., Cincinnati, Ohio.

A. B. Luten—Metropolitan Pav. Br. Co., Toledo, Ohio.

J. L. Murphy—Hocking Valley Br. Co., Nelsonville, Ohio.

G. C. Mayer—C. P. Mayer Br. Co., Bridgeville, Pa.

H. H. Rosenberg—Brick & Clay Record, Chicago, Ill.

C. W. Knowlton—Atlantic Refining Co., Camden, N. J.

R. C. Patterson—Atlantic Refining Co., Philadelphia, Pa.

T. A. Randall—The Clay Worker, Indianapolis, Ind.

H. P. Martin—Supt. of Streets, Dayton, O.

W. T. Newcomb—Engr., Easton, Pa.

Fred C. Smith—Consult. Engr. Philip Carey Co., Lockland, Cincinnati, O.

Victor C. Smith—County Engr., Dayton, O.

B. F. Gallagher—Veedersburg Paver Co., Veedersburg, Ind.

Chas. P. Light—Field Secy., A. H. A., Washington, D. C.

O. W. Renkert—Metropolitan Pav. Br. Co., Canton, Ohio.

C. L. Stoner—O. P. B. M. A., Canton, O.

G. L. Clapper—The Brown Instrument Co., Pittsburg, Pa.

H. S. Renkert—Metropolitan Pav. Br. Co., Canton, Ohio.

Wm. H. Stone—Manufacturers Record, Baltimore, Md.

H. W. Alden—Ohio Quarries Co., Buffalo, N. Y.

Robert R. Nevin—Dayton, Ohio.

W. E. Sarver—City Engineer, Canton, O.

W. T. Blackburn—Engr. Dunn Wire-Cut-Lug Brk. Co., Paris, Ill.

Wm. F. Langfeld—Dayton, Ohio.

C. C. Barr—The Barr Clay Co., Streator Ill.

T. Brindle—State Highway Dept., Ashland, Ohio.

R. W. Graham—Adv. Mgr., Road Maker, Moline, Ill.

E. L. Hess—E. M. Freese & Co., Galion, O.

B. F. Cotter—Coshocton Brick Co., Coshocton, Ohio.

Wm. Fries, Jr.—Commr. of Bd. of Wks., Newark, N. J.

John W. Eichelberger—Carlyle Pav. Br. Co., Dayton, Ohio.

W. A. Alsdorf—Secy., O. Gd. Rds. Fed., Johnstown, Ohio.

D. E. Dinham—Gov. Rds. Assn., Lebanon, Ohio.

John Laylin—State Highway Dept., Columbus, Ohio.

John Glass—Mfrs. Record, Chicago, Ill.

H. H. Macdonald—Asst. Sec., N. P. B. M. A., Cleveland, Ohio.

The "Complete Building Show" Gets Flying Start

Early Applicants File Requests for Booth Assignments Which Cover More Than Seventy Per Cent of the Available Floor Space

THE DATE FIXED for the first assignment of space at the Complete Building Show, found applications on file for more than 70 per cent of the floor space. Considering the fact that this date was the 11th of the present month, and that the show will not open until next February, this early interest is a fair indication of success.

It also indicates that those who have engaged space intend "doing themselves proud" as exhibitors, and, having secured the desired location, will now buckle down to the serious business of designing or planning their particular part of the show in a way that will properly represent them to the prospective builders who will throng the exposition.

When it is considered that the area of the Coliseum in Cleveland, in which the Complete Building Show will be held, is more than 65,000 square feet—all on one floor—and that more than 45,000 square feet of this has been sold, one of two things is brought strongly to mind: Either the exhibitors intend putting in exhibits that will cover a great deal of space, or the number of exhibitors will be very large. All of which shows the wisdom of throwing this show open to all kinds of building materials, and so making it what it claims to be—a complete building show—with the accent on building.

The applications for exhibit space have come from a great variety of materials and it is believed that the early claims made by the management—that the show will be truly educational, in showing the advances that have been made in building construction—will be more than fulfilled.

It is predicted that it will be unnecessary to develop any further campaign for the sale of the remaining space, and "Brick and Clay Record" takes this opportunity of advising its readers to write for rates and floor diagrams *now,* rather than wait until some later date, when other building interests will have taken everything in sight. We want this to be as much of a brick show and hollow-tile show as is possible—and this end will be attained only by the foresight of the manufacturers of clay products.

The display will be unlike anything ever before attempted in America. Not only will it embrace all materials and accessories that enter into building construction, but it will be made up of a large number of community exhibits. It is already assured that no less than five complete houses will be erected on the exposition floor. These will be surrounded with real grass lawns, flowers and shrubbery. They will be completely finished, so far as the exterior is concerned, but in nearly every case, the interiors will be built so that the methods employed in their construction can plainly be seen. The plaster "lid" will be removed and the "works" exposed for the education of the men who will be the builders of the future—a future that will, in many cases, come during the year Nineteen Sixteen.

Artistically, the Complete Building Show will be a revelation to the visitor. There will be three distinct sections, each with a suitable decorative scheme. The larger of these will be devoted to construction materials, and the "street" upon which these houses will be built will be brick paved. Another section will be given up to interior decoration, and here, it is understood, a creditable exhibition of pattern brickwork, floor and wall tile and mosaic will teach the lesson of permanency in interior work, especially for public buildings. The third section will be made up of landscape gardening, with an opportunity for brick walks, garden walls and burned clay appurtenances, terra-cotta fountains, statuary and the like, to make a creditable showing.

The feature of the Complete Building Show that appeals most strongly to the public mind is its organization. The management boasts that it is a show which is not run for profit. Its direction is in the hands of fifty building material concerns fairly representative of every material that is known and used in the building world. These companies look for their ultimate profit to the impetus that will be given the better grades of materials through the education that will be a part of the exhibition plan.

The exhibition company is now erecting, on Lake Shore Drive in Cleveland, a fire-safe house which, with the lot upon which it is built, will cost in the neighborhood of $6,000. This is to be given away at the show, as the grand prize in a novel contest open to every person who visits the exposition. The contest will be of a nature that will appeal particularly to the prospective home-builder, and it is expected that the rich reward that will come to the winner will attract a larger number of really interested persons than has ever before visited a building material show in this or any other country.

Association Notes

The Ohio Face Brick Manufacturers' Association held its monthly meeting at Columbus, September 29, W. D. Richardson, of Shawnee, Ohio, presiding. Representatives of the Alliance Brick Company, Belden Brick Company, Claycraft Mining and Brick Company, Columbus Brick and Terra Cotta Company, Federal Clay Products Company, Hocking Valley Products Company, Ironclay Brick Company, New Lexington Clay Manufacturing Company, Stark Brick Company, Straitsville Impervious Brick Company and of the Warren B. Ferris Brick Company, were present. With a very few exceptions, every face-brick manufacturing concern in the state of Ohio is a member of this association, which is a powerful organization, active in the work of bettering the conditions surrounding the manufacture and sale of face-brick.

The principal speaker of the day was Malcolm Jennings, secretary of the Ohio Manufacturers' Association, who had for his subject the false economy and poor business ethics that are behind the "Buy at Home" propaganda that springs up, every once in awhile, in one center of population or another. He said, in part: "The corollary of 'buy-at-home' is 'sell-at-home,' and yet the latter proposition instantly makes obvious the impractical nature of both suggestions. Reduced to its last analysis, the utter absurdity of the 'buy-at-home' idea becomes apparent. If one is to confine his buying within his own municipality, why not within his own ward, upon his own street or block, from members of his immediate family? In order to be able to buy, one must sell, and so must, in turn, find buyers within the same narrow circle. The scheme is rendered even more impractical when we consider that every other sentiment—the vagaries of taste and predilection are left out of the question. Abroad we see a great war, which has been caused largely by this worn-out idea of racial solidarity and by a restriction of commerce. We need a Christmas spirit of 'Peace on Earth, Good Will'—a universal language and unrestricted commerce among all of the people of our cities, our states and across the country—yes, across the sea and among all of the peoples of the world. And in that day, no matter where we buy, we will be 'buying at home.'".

The next meeting of the association will also be held in Columbus. The date has been set for October 27.

OREGON CLAYWORKERS MEET NOVEMBER 4

It has been decided to hold the fall meeting of the Oregon Clayworkers' Association in Portland, Ore., on November 4 and 5. A committee, of which Harold C. Smith is chairman, has arranged an interesting and instructive program, which includes a visit to the clay plants in and around Portland. A business meeting will be held on the morning of the second day—November 5—at which the reports of various committees will be considered as well as other matters to be brought up at that time.

During the meetings, headquarters will be established at the offices of the Denny-Renton Clay and Coal Company, 179 Burnside Street at the entrance of the Burnside bridge, Portland. The time of the meeting was also selected with a view of giving the members of the association an opportunity to attend the Land Products and Manufacturers' Exposition which will be in progress at that time. All who are interested in the manufacture of clay products, whether they be members of the association or not, are cordially invited to be present at these meetings, to get acquainted with fellow clayworkers and the principal plants around Portland.

MERGING S-A-F-E ASSOCIATIONS

An important addition to the membership of the Society Advocating Fire Elimination, of Cleveland, was made when, early in the present month, the S-A-F-E absorbed the only similar organization in the country, the Standard Builders' Supply Association, of New York. With this, the Cleveland organization obtained an "official organ," in the form of a publication called "Construction," a magazine devoted to the promotion of fire-safe construction materials and appliances. The Society Advocating Fire Elimination, with more than one hundred firm members, principally located in the Middle West, has, since its organization a little more than a year ago, emphasized the importance of the use of fire-safe materials in buildings—particularly in dwelling houses, schools and apartments. At the same time the New York society has dealt with larger construction and has had its membership largely in the East. The combination broadens the field and strengthens the Society Advocating Fire Elimination and the acquisition of a vigorous publication with which to bring its message to many thousands of readers, will, beyond doubt, be a great aid to the directors of the S-A-F-E in making the campaign that they have been carrying on in a comparatively small way, one that will be national in scope and impressive in its achievements.

INVESTIGATING NEW JERSEY CLAYS

The investigation of New Jersey clays which was advocated by the New Jersey Clayworkers' Association at its last convention and provided for at the last session of the state legislature, has been started by the ceramic department of Rutgers College, the work being carried on in co-operation with the State Department of Conservation and Development. S. M. Sharkey of Trenton is visiting each clay mine in the state and securing samples of clay found in each pit. These samples are being sent to the ceramic laboratory where they will be carefully tested and the result published.

Bricklayers' Wages Increase

Wages of bricklayers increased two per cent between May 1913 and May 1914, according to a report which has just been made public by the Bureau of Labor Statistics, Department of Labor, Washington, D. C. The report covers union scale of wages and hours of labor for ninety-three of the principal trades in forty-one of the leading cities of the United States prevailing in May 1914.

The average rate of wages per week for all cities taken collectively was higher on May 1, 1914, than on May 1, 1913, for seventy-five of the trades reported. In seventeen trades there was no change, and in only one trade was it lower.

The weekly increased wages of hod carriers between May 1913 and the same month in 1914 was one per cent. The highest scales per hour paid in May 1914 in the bricklayers' trade was 87.5 cents in Dallas, Texas, and San Francisco, Cal.

Sells Three and One-Half Silos

The Colchester (Ill.) Brick and Tile Company recently sold to F. M. King of August, Ill., three and one-half silos. While, on the face of it, this transaction may seem a little queer, it is easily explained by the fact that the half silo is to be placed on top of a cement silo already built. The owner evidently has come to the conclusion that cement is not exactly the best material with which to build a silo, and since he cannot afford to tear down what has already been erected at a substantial cost, he is at least endeavoring to correct his error while making an addition to his silo capacity. The fact that he has purchased three new burned clay silos is also indicative of his conviction that this material makes the best silo.

W. S. Dickey Candidate for Senatorship

Walter S. Dickey, president of the W. S. Dickey Clay Manufacturing Company, of Kansas City, Mo., is a candidate for United States Senator from Missouri. Mr. Dickey has long been one of the most prominent business men of Kansas City and the West, very active in the Commercial Club, civic affairs and public enterprises.

Noted Clayworkers Dead

Ira Lewis Conkling, president and founder of the Conkling-Armstrong Terra Cotta Company, Philadelphia, and considered to be one of the best informed men on terra-cotta in the United States, died recently at his home in Germantown. He was fifty-five years of age.

Charles C. Fell, one of the oldest brick manufacturers in the city of Trenton, N. J., died recently at the McKinley hospital in that city, from an attack of pneumonia.

The Motor Truck That Replaces Three Teams

Astrid S. Rosing

Her Middle Name is "Service"

A Story of a Woman's Intuition Applied to the Problem of Getting Larger Profits Out of Reduced Operating Expenses

"I HESITATED A LONG TIME before deciding to buy a motor truck, but now I wish I had bought it six months—yes, a year ago."

It was Astrid S. Rosing speaking, the only woman who has ever had the courage to engage in the business of selling clay products.

"How much does it save me? About twenty per cent. You see it replaces three teams and moves much faster than a horse. I can give service with my truck—my middle name is service, it is so painted on the side of the truck box. And since it helps me to live up to my reputation, I am for the truck."

Thus, in a few short sentences, Miss Rosing summed up her similarly short experience with a motor truck. The time, however; had been sufficient to impress upon the owner the advantages of this type of vehicle in delivering clay products and other building materials.

Without going further into the discussion of that time-honored chestnut about a woman's instinct for a bargain, let it suffice to say that here again has her ability to get more than a dollar's value for a dollar paid cut, been proven—this time in the business world where success is measured by the frequency with which one does just that sort of thing.

Perhaps one of the best examples of what the truck has done for Miss Rosing may be found in the letting of the contract for the building materials on a job located in one of Chicago's north-shore suburbs, recently. After spending considerable time in drawing up the plans for the building and in letting the contract, the architect suddenly decided that it was a rush job and must be finished in a hurry. Consequently orders were given the contractor to get the building up in record time, and to work nights, if necessary to expedite the work.

Along toward the close of a busy day—in fact it was about five thirty—the telephone bell rang in Miss Rosing's office. The contractor for the north-shore building was on the wire and wanted some material in a hurry. He was planning to work his men that night and they must have some material. The building was a large operation, and altho the business offered by the contractor was only for a part of the material, the order was very attractive.

Miss Rosing was asked just how soon the material could be delivered on the ground.

"In a half hour," was the reply.

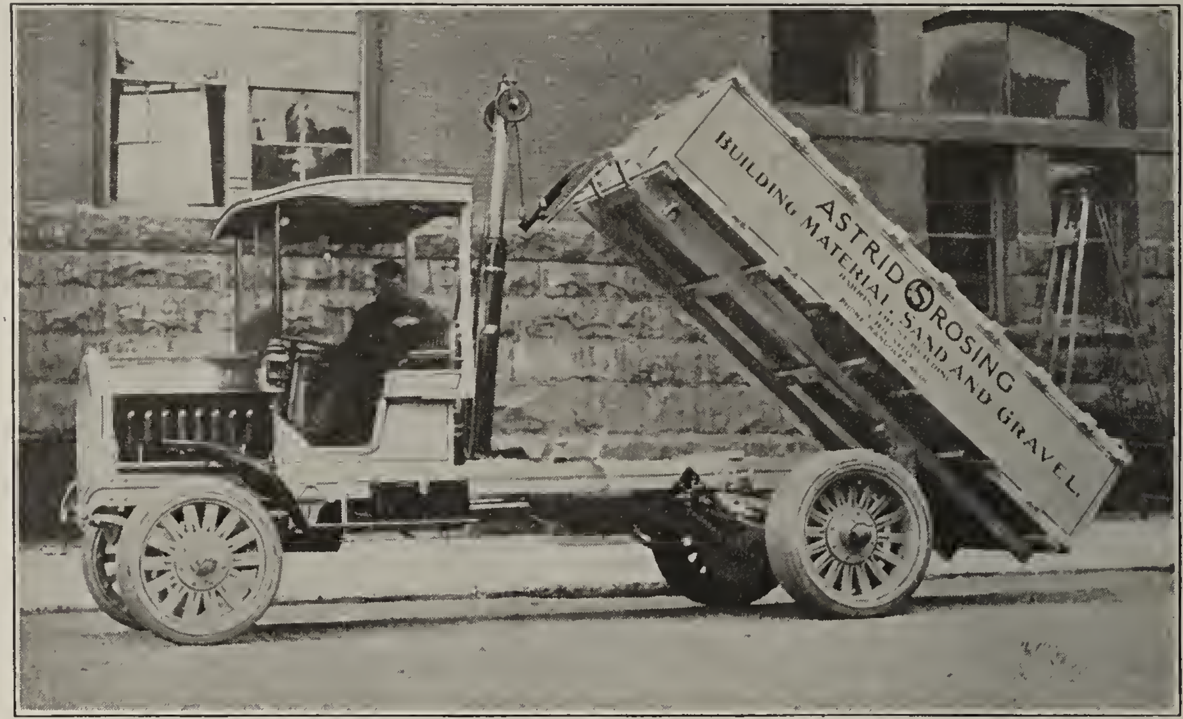
And so a small order was placed with the understanding that the time required to make deliveries that evening and the next day would be carefully checked, and the order increased or further business refused, depending upon the promptness with which the material was delivered.

That was at five-thirty. At exactly six o'clock, the material was being unloaded from the truck at the building site. The same promptness characterized deliveries on the following day, and Miss Rosing was given a substantial order for more materials. Not only that, but she offered the service of her truck, and did help, other dealers who were supplying materials to this job, but who found, owing to their inadequate delivery facilities, that they could not furnish the material fast enough.

Miss Rosing handles a large amount of hollow building tile and fireproofing for work in and about Chicago. In the delivery of this material, the truck has been found to effect a very attractive saving, the average cost for laying this material down at the job being fifty cents a ton.

A careful investigation into the cost of hauling farm products by horse and wagon to shipping points, was made by the United States Department of Agriculture in 1906. While at first thought it would seem that such an investigation has little application to the cost of delivering clay products to the points at which they are used, it must be remembered that the average clay plant is not located in the heart of a city or town, but is nearly always situated in an outlying district, and many plants are far out into the country, being surrounded by farms on all sides. In many cases the haul from a clay plant to the adjoining city or town is no greater than that for the farmer who sells his produce in the city, and when one stops to think about it, there is considerable difference in value between a load of face-brick, for instance, and one of garden truck, or even grain.

The inquiry carried on by the Government covered twenty-three of the principal products of farms, planations and ranches, and nearly nineteen hundred replies were received from correspondents at points scattered through the nation. The results showed that it cost on an average of a little more than *twenty-three cents a ton for every mile that these products were hauled by horse and wagon.*



The Truck With Box Elevated, As When Unloading Rough Materials. This Method Can Be Applied Very Well in the Delivery of Common-Brick, in Which the Box is Slowly Elevated Until the Brick Begin to Slide Out at the Back When the Truck is Slowly Moved Forward Until the Whole Load Is Deposited on the Ground, Effecting a Considerable Saving in Time

The only way of reducing the cost of haulage by team is to improve the roads. Rapid progress has been made in this matter in many states within the last decade, and particularly inside of the last five years, but whatever gains have been made in this way have probably been offset by an increased purchase price for horses and a rise in the cost of hay, grain, labor and other items. Consequently no relief has come from this quarter.

Apparently the only remaining hope for actual and substantial reduction of transportation cost lies in the commercial motor vehicle.

A tabulation of transportation costs with both motor truck and teams has just been made by the secretary of the commercial vehicle committee of the Automobile Chamber of Commerce, an organization of automobile and truck manufacturers. In grouping these figures, the cost of performing the same service with horses and wagons was set opposite the figures for motor haulage, wherever possible, for comparison. These horse costs were given in each case by the companies owning the motor vehicles, from their own experience with horses engaged in the same service, so that the comparison is in the highest degree fair and reliable.

The result of this study indicates that the average cost of hauling in the city by motor is 11¼ cents per ton-mile, as compared with 17¾ cents by horse. This represents a saving of thirty-six per cent. The average cost of deliveries by department stores, furniture, clothing and grocery stores, meat markets and electric-light companies, is shown to be approximately eight cents by motor and sixteen cents by horse, representing a saving of about fifty per cent by the former method. The analysis shows that the average cost of operating motor trucks and delivery wagons embracing all sizes of both gasoline and electric machines, is $10.97 a day. This covers all items of operation and maintenance, such as driver, garage, interest and depreciation. The average cost of doing equivalent work with horses is $16.75 per day, which represents the expense of from two to three wagons, with drivers. Here is a saving of more than thirty-four per cent.

From this showing, it is evident that the motor truck offers abundant opportunity for reducing transportation costs, not only to the retailer and manufacturer of household commodities, but to the clayworker, as figures available from those who employ this method of transportation in the delivery of clay products, indicate a saving corresponding those above stated.

Miss Rosing's wish that she had purchased her motor truck long before she did, finds a parallel in the experience of many manufacturers and dealers in burned clay wares. Where competition is keen, equipment that reduces cost and improves service will win for the owner in the long run. The motor truck does every bit of that—it puts speed into the sales force, and reduces delivery costs.

Nashville Business Men Visit Local Brick Plant

With the expressed purpose of learning something regarding the art of brickmaking, several of Nashville's (Tenn.) prominent business men climbed into a large delivery truck one day during the latter part of September and paid a visit to the brick plant of W. G. Bush and Company, located to the north of the city.

The first section of the company's plant to be inspected by the visitors consists of six kilns in which face-brick alone are burned. Following this, they saw the continuous kilns and machinery for making common-brick. Electric power is used throughout the plant.

The clay pit is located about a mile from the kilns at a point which has been the scene of brickmaking since before the Civil War. The plant has a capacity of about 200,000 brick per day.

Controlling Temperatures in Down Draft Kilns

Wherein the Burning Question is Treated in Simple Language and Common Faults in the Application of Heat to the Rougher Forms of Clay Ware Consistently Corrected

By C. O. Arbogust, Cr. E.

EDITOR'S NOTE: The elimination of waste is the clayworker's greatest problem. Fuel waste, labor waste, time waste and the depreciation in the value of the product which follows over and under-burning, spell the difference between profit and loss. In this paper, prepared by one who has added practical experience "on the shovel" to a well grounded ceramic education, the author points a way tô efficiency in burning through the medium of a proper control of kiln temperatures at every stage in the process of firing.

IT IS VERY PROBABLE that the erratic, and generally high burning costs of clay products, is due for the most part, to the fact that certain definite and fundamental principles are almost entirely ignored. The same may be said of the varying qualities of the ware produced.

In talking with many burners and superintendents in every section of the country, the author of this article has found that the great majority of these men realize a great improvement could be made in the methods of burning that they are using. They, however, continue to pursue certain practices because they are accustomed to do so, and are unwilling to assume the risk of making any seemingly radical change.

Except in rare instances, the principles of burning common clay wares in down-draft kilns are fixed; the size and the construction of the kilns may vary, the clays may vary, the fuel may vary and the degree of color or toughness to be obtained may vary, but the principles that underlie successful burning do not vary, and knowledge in them must be thoroly grounded before consistent success can be expected.

There is no mystery in successful burning, and it is for the purpose of substituting something very like certainty for the all too prevalent uncertainty that sometimes attends the burning of brick and other clay wares, that this article is written. It will be found that it is written without the use of technical terms—in an untechnical way, in order that it may appeal to and help the "man on the shovel" as well as the managing superintendent.

No attempt is made to deal with the construction of kilns, nor with the composition of clays, nor with the chemical and physical changes which take place in clays exposed to heat and gases, except where these details have a direct influence upon heat control. But an effort is made to indicate practical methods of controlling kiln temperatures and with the application of this control to each stage of the burning process, viz.: watersmoking, oxidation and vitrification.

WATERSMOKING

It is obvious that the first place where heat control enters into burning is during the watersmoking period, and too often watersmoking is treated as a necessary evil, and is either finished hurriedly or carried at too high a heat, in order to hasten the operation. This period may properly be called the preparatory period, during which it is necessary to prepare the ware to later on receive and uniformly absorb the heat that is to be applied.

Theoretically, all the water will be expelled at 212° F., which is the boiling point of water, but actually it requires from 300° to 400°F. to drive out the last trace of pore water. An idea of the actual work to be performed in this watersmoking period may be gained if we consider the amount of water actually contained in the dry ware set in the kiln. Presuming that there are 80,000 brick in kiln, and that each brick contains a half pound of moisture, the amount of water that in to be carried off approximates twenty tons; and this is in addition to the water vapor that is carried into the kiln in the air, and that which is produced by the combustion of the fuel.

INCOMPLETE WATERSMOKING

The error of incomplete watersmoking is accumulative. For instance, if the fires are built up before one or more sections of the ware are as dry as the surrounding material, this wet ware advances or matures always a few hours behind the ware which has been prepared for high heat treatment by being thoroly dried during the watersmoking period; a differential flow of the gases is created, the highly heated gases flowing around the wet sections instead of being brought down uniformly through the entire horizontal cross-section of the kiln.

If the clay is impregnated with carbon or sulphur or both, it is evident that these impurities will be burned out or oxidized in the material that was wet, after the balance of the setting is oxidized (and therefore ready to receive high heat), resulting in swelled ware. Ware cannot oxidize, it cannot dehydrate, it cannot absorb and gain in heat until it is dry.

Even though the clay does not contain impurities, it is usually the case that the ware in those sections which were delayed in drying is not burned as hard as the surrounding material, or is "off color."

If the top is dried and the bottom wet the top will mature too soon, and the results are an overburned top and a matured bottom, or a mature top and an underburned bottom—usually the latter.

It is a common occurrence, also, to find that the ware not dried is later on forced to take heat too fast, and that checked or cracked ware results.

These are the indirect results of incomplete watersmoking.

FAST WATERSMOKING

If the kiln is fired too hard at this stage of the burning, so much steam is generated that the stack is not able to carry it off, and the moisture condenses on the bottom ware, causing it to soften, so that the load above crushes it. The actual loss here may not be great if the ware crushed does not spread out and cover up the floor perforations, yet the crushed ware is a tangible, actual loss and can be prevented. When perforations are closed from crushed ware or other causes (such as chips or careless setting) it checks the draft and automatically causes a differential flow of the gases away from the floor sections where the perforations are closed, with the identical result outlined in the previous paragraphs.

Another direct result of watersmoking too fast is "sooting," which is caused by the excess smoke becoming heavy with moisture and depositing the wet suspended carbon on the lower courses of the ware.

This soot often becomes so thick and hard, as to entirely choke up the floor perforations and flue spaces in the ware. A remedy sometimes used is to "shoot the kiln," a process that is accomplished by loading and packing loosely an old musket or shot gun, and discharging it into the bottom peep-hole. This jars and loosens the soot, giving free passage for gases until such time as the heat rises high enough to ignite the packed soot and burn it out.

The use of coke or wood is advisable during this period if either can be cheaply obtained. This is particularly advisable when burning dry-pressed ware.

Still another result of fast watersmoking is checked, cracked and shaky ware, depending on the tenderness of the clay, fineness of grain and density of the surface skin. This is especially true of paving-brick and undoubtedly a lower rattler test would be obtained in some instances, if more care were taken in drying the pavers.

WATERSMOKING TOO SLOW

If the kiln be watersmoked too slowly, the stack does not become heated up and consequently does not draw, the result being that the steam lingers in the bottom of the kiln and causes softening in the ware.

The danger here is that the fires will be built up at the end of a stated length of time (usually two days) and obviously before the ware is dry, resulting in later difficulties, as outlined in the previous paragraphs.

Watersmoking too fast and too slow are prime causes of scum on the bottom ware. Much of the steam that is not carried away (in both cases) condenses on the ware, sulphur gases deposit their acids on this wet ware, the soluble alkalies in the clay have more chance to travel to the surface and scum is the result.

A medium must be established that will dry the ware safely and quickly.

THE WATERSMOKING FIRE

A clean fire (not smoky) and having a flame not to exceed one foot in length is recommended, and this fire should be built at the back of the pocket, not in front, using an open pocket. It is an excellent plan to hang sheet-metal over the top half of the front of the fire-box in order to direct the draft over the bed of coals. If the fire-box is equipped with doors, close the firing-door and open the ash-door wide. Don't use grate-bars in slant grate furnaces until the start of the heating up stage. If equipped with horizontal or shaking grates, the watersmoking fire may be built on the grates at once.

The maximum heat should not exceed 400° F. and should be regulated with a watersmoking thermometer.

Of course, a good draft is to be desired, but at this period it is difficult to obtain. Build a fire in the stack to facilitate it, and use every possible effort to encourage the draft. Plaster with mud every place where there is any chance for the leakage of air, including top, doors, sidewalls and opening into the stack at damper.

TEST FOR DRYNESS

In order to approximately know when the kiln is dry, insert a cold, dry iron rod into the bottom peep-hole, along the floor of the kiln, and keep it there for from thirty to sixty seconds; any moisture in the kiln gases will collect on the cold rod, if the kiln is not dry. The same procedure can be followed by placing the cold rod in the flue leading to the outside stack, but the reading here is not correct, as this indicates also the degree of moisture in the bottom flue work of the kiln, and is not indicative of the condition of the ware.

Time can be gained, coal can be saved and better ware produced, if the watersmoking period is handled as a distinct period, with a definite object in mind—to safely and thoroly dry the ware.

In spite of all these precautions and rules for thorough drying, there are many plants that are today consuming too much time in drying—time that could be saved.

THE DEHYDRATION AND OXIDIZING PERIOD

This period is a division arbitrarily named for the sake of convenience; it includes that period between watersmoking and incipient vitrification, although no definite fixed points can be assigned that separate one from the other. They overlap, and in commercial operation it is a practical impossibility to entirely separate them, inasmuch as the top is heating up while watersmoking is still in progress in the bottom, and in the next period the top may be vitrifying while the bottom is heating up.

The primary object is to get a heat in the bottom of the kiln—to "clear it up" without overburning the top—and at this point the first real difficulty in the control of kiln temperatures arises.

The burner must be able to control the heats, for he has other points to accomplish of more or less importance before proceeding with the next step—vitrification.

1: He has to secure a heat on the bottom that is practically the same temperature as that in the top. 2: To prevent settle and vitrification in the top ware. 3: To dehydrate the clay and to oxidize all carbon, sulphur, and iron in both top and bottom ware, if any be present. 4: To make the kiln a collector of heat, and to force it to absorb and retain from the enormous amount that is passing through the kiln to the stack, sufficient heat to mature the ware. 5: To do all this with a minimum expenditure of coal, labor and time—principally time.

The author is tempted to say here, that during this period *there is no limit to the amount of heat that may be poured into a kiln so long as it does not settle.* It is true perhaps, in the great majority of cases, but in shales and fire-clays containing excessive carbon, carbonates and sulphur, there is a point at which it is best to hold the temperature until these impurities are burnt out or oxidized.

The temperature accepted as being most efficient in causing carbon to completely oxidize is approximately

1,500° F. One-half of the sulphur is burned out at about 950° F., the balance at a temperature between 1,600° and 1,700° F. The combined water is driven out at about 1,200° F. and the decarbonization of iron carbonate, calcium carbonate, magnesium carbonate and dolomite is accomplished at temperatures variously estimated below 1,700°. It is evident also that the speed of dehydration and oxidation is directly influenced by the density of the ware. For instance, soft-mud, dry-press and stiff-mud wares offer increasing difficulties to speedy oxidation in the order named. It is evident, then, that the statement must be completed by adding the qualifying phrase—and as long as the clays do not contain an excessive amount of impurities.*

There are other exceptions, in which the ware will crack and pop if heated too fast; particularly is this exception true of fine grained clays and of ware the surface of which is made very dense by die pressure.

Before the oxidation or heating up period has been successfully completed, two main points will have been accomplished—first, the material being burned will be free from impurities such as carbon and sulphur and oxidation completed, and second, the kiln will be "clear" on the bottom, which means that a bright heat will have been obtained in the lower courses of ware on the floor.

If the clays do contain impurities and the first point is accomplished, the second point is automatically secured. The first point applies to all clays that contain impurities and where the point of maturity is carried beyond the first or condensing stage to complete vitrification. The second point includes all clays. This prepares the clay so that we may safely proceed with vitrification and maturity, for if vitrification is started before the clay is completely oxidized, the results will be disastrous—black spongy cores and swelled ware is inevitable.

There are two simple methods for determining when the carbon and sulphur have been expelled; one is to watch the stack (or stacks) and note the final disappearance of the blue smoke and the other is to draw trials from both top and bottom peep-holes, break them through the thickest section and note when the last of the dark center core has been eliminated. Both methods should be used.

BLUE SMOKE

Robert Twells, now superintendent of the Key-James Brick Company, and a man who has done much to teach practical burning to the younger generation, says: "There are soft brick in the kiln as long as there is blue smoke coming from the stack." An analysis of the statement proves it true. The blue smoke indicates that the ware has not yet been prepared for vitrification, that the ware is still porous, that carbon and sulphur still exist in the ware and that it is not yet safe to raise the temperature.

TRIALS

Trials should be drawn from both top and bottom, broken open and examined for core on the inside and for traces of incipient vitrification on the outside shell or surface.

Govern the fires so that surface vitrification does not start, and take measurements often with the settle rod o be sure that settle has not started, otherwise the surace or skin will vitrify, pores will be sealed up and the gases caused by the oxidization of the carbon and the sulphur cannot escape, and the continued generation and pressure of the gases confined within the sealed surface or skin causes the ware to bloat and swell out of shape.

Inasmuch as no gases can escape, it follows that no oxygen can get in and, without going into a discussion of the "role played by the iron," it is sufficient to say that the nature of the iron content is changed radically, due to a lack of oxygen and the inside mass melts and fuses at a lower temperature than the surrounding clay, causing the familiar spongy texture noticed in the fracture of a broken swelled brick.

Quite often pockets of swelled brick are found in the heart of the kiln, surrounded by sound brick. This is undoubtedly caused by these brick being set wet, or in some other maner delayed in drying and oxidation and therefore not ready to vitrify with the balance of the kiln.

When the trials drawn from the floor show that the core has practically been eliminated, then it is safe to proceed and secure a vitrifying heat.

SETTLE

The author has noticed a very peculiar phenomenon that occurs with many clays, which has been of considerable help to him in determining when the kiln is almost ready to settle. Just preceding settle, the kiln will rise, and the greater the rise the more chance there is for a uniformly hard burn on the floor of the kiln. The author believes that the kiln should never be fired so hard that settle sets in before the rise is secured.

Observations on this point have been limited, but the author is inclined to think that the rise is due to the expansion of the mineral structure when exposed to heat. The fact that a strong rise presages a good bottom burn means simply that the bottom and top are heated uniformly and therefore the bottom ware is expanding (due to heat) and is contributing to the rise; the inference being that a high rise indicates a kiln uniformly heated and consequently ready to uniformly settle or vitrify. Sometimes a rise of one-half inch is noted, although it is difficult to determine the rise as the crown also rises. Rises of one-quarter to three-eighths of an inch are common.

The original settle record should be taken immediately at the close of the watersmoking period.

FIRING

At the end of the watersmoking period, it is usually the case to have accumulated a good live bed of coals in the pockets. Build this up without loss of time, a few scoops at intervals, or as fast as the coal can be coaxed into burning, until it is up to the top of the slant grates. When horizontal grates are used, they should be covered within two or three hours.

It is not bad practice to close up the furnaces rather tight for a few hours, in order to redden up and secure a local heat in the boxes, a hot box aiding combustion and promoting draft, giving a shorter interval of stagnant fires as a result.

After securing a good bed of coals, fire light and often and keep the fires thin and open. In this manner a steady uniform supply of heat can be generated, fed into the kiln, and assimilated by the ware. Emphasis is placed on each of these points, and particular stress is placed on the necessity for an open fire.

Under no circumstances should you allow the box to reach a white, dazzling heat since it absolutely defeats all efforts towards economical burning and produces only negative results.

(To be Continued)

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*(For comlete discussions of these points see Edward Orton, Jr.'s, paper "On he Role Played by Iron in the Burning of Clays;" Trans. A. C. S., Vol. 5., and A. . Bleininger's, "The Effect of Heat Upon Clays." The temperatures given above re only approximate as no attempt is to be made to discuss chemical action due o heat.)

Added Profits

Reward Farmers' Extended Use of

Hollow Clay Tile

EDITOR'S NOTE: This is one of a series of articles that is reprinted in "Brick and Clay Record" with a view to impressing upon the manufacturers of burned clay ware the importance of getting their story before the man who uses their material, and in a way that will appeal to his shrewd business sense. It was written as a part of the publicity campaign of the Hollow Building Tile Manufacturers' Association, and was published in "The Farmers' Review", where it was given a wide circulation among farmers interested in the very profitable business of hog raising. It has another point of interest to manufacturers of clay tile, in that it gives them another, and possibly new, sales-argument.

Interior View of Clay Tile Hog House Built on a Farm in Dallas County, Iowa

MORE THAN TWO HUNDRED little pigs farrowed in February without loss, except a few that were killed by the sow, or came dead, and in a hog house unprovided with artificial heat? Impossible! Yet, this is exactly what happened, not only on one farm, but on two which we shall mention. On another farm over one hundred little piggies were brought into the world under similar conditions, with practically no loss.

There has been a movement on foot for some time in agricultural circles to provide better protection for the hog, very often the most valuable crop on the farm, especially in the Middle West. To feed a number of sows all of the year and to take care of them, and then have them lose the greater part of their litter at farrowing time, due to improper shelter, is not the most profitable of enterprises. To stop this waste and to turn what might otherwise be a loss into a profit has been one of the problems of our agricultural experiment stations. A number of remedies have been advanced in the way of specially designed hog houses, which, when built, would provide the maximum warmth and the best sanitary conditions. One of these houses, so designed, and which has been creating considerable interest in the corn belt, is that offered by the agricultural experiment station of the Iowa State College and named the "Iowa hog house," types of which are shown.

The first house shown is that on the W. B. Kinnick farm in Dallas county, Iowa. It is 24 feet wide, 80 feet long and 5½ feet high to the eaves. This house is built of hollow clay building tile with an 8-inch wall. The roof is shingled, and has a double row of skylight windows on either side of the ridge, extending very nearly the entire length of the house. There are 20 pens in this building, 10 on each side, with a small top-hinged door leading from each pen into the feed lot. In addition to the skylights there is a large window over each pen to catch the long, slanting rays of sunlight and lead them into the house. More than 200 pigs were farrowed in this house during the early part of the year, with practically no loss, and without the aid of artificial heat. An interesting feature

Hollow Tile Hog House Twenty-four by Eighty Feet on the Farm of W. B. Kinnick. This House Is Warm in Winter, Dry, Sanitary and Economical of Construction—a Paying Investment for Any Farmer with Hogs

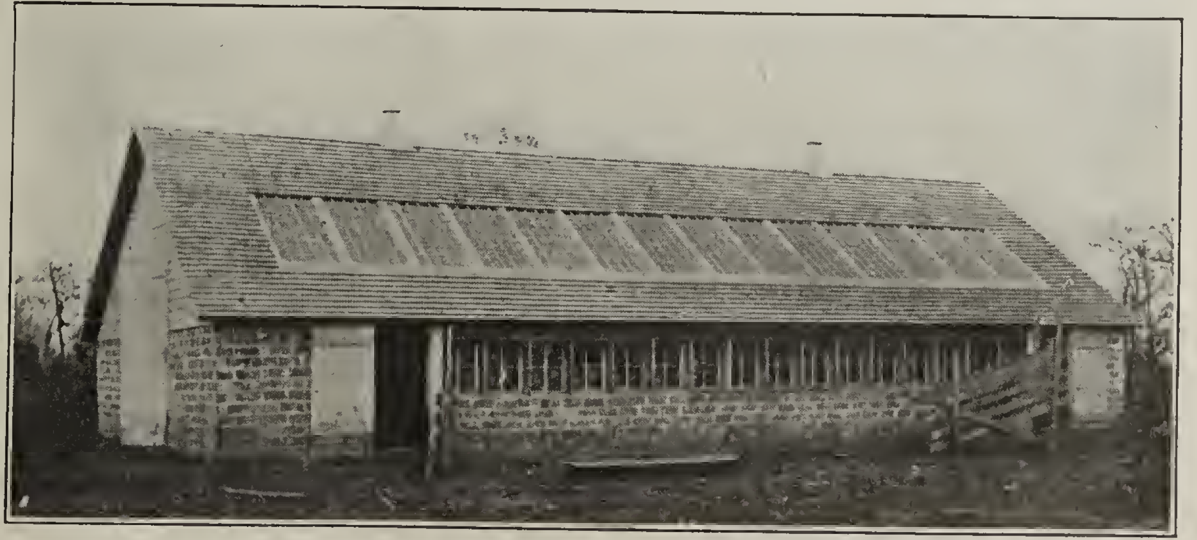
Hog House on the Tom Walker Farm, an Interior View of Which Has Already Been Shown. This House Contains Eighteen Pens, Nine on Each Side, Measuring Six by Eight Feet

of this house is its floor, which is a combination of tile and concrete. In building this floor a half-inch sand cushion was first laid and tamped. On this cushion was placed hollow clay building tile, and over the tile was spread a 2-inch topping of cement. This construction makes a floor which is substantial and sanitary in every sense of the word. In addition to this, it is warm, due to the insulating properties of the tile placed beneath the concrete.

A Closer View of the Skylight Roof on the Kinnick Hog House. No Matter From Which Direction the Sun is Shining, the Light and Heat Get In

Another illustration is that of the hog house on Tom Walker's farm in the same county. This house measures 24x60 feet and has the double row of skylights on each side of the roof. Like the Kinnick house, this was also built of hollow clay building tile, having the same wall thickness. Inside there are 18 pens, 9 on each side, measuring 6x8 feet. On the south end of the house is a feed storage bin on each side, of the same dimensions as the pens. This house cost approximately $395 to build.

A slightly different arrangement of skylight windows is shown in the hog house on the farm of Fred Worster. While similar in nearly every respect to its predecessors, the skylights in this house are located half-way down the roof, instead of on each side of the ridge. Mr. Worster followed this plan of lighting because he believes that it gives more sunlight in the back of the pens, especially in the winter months, when the sun's rays travel at a greater angle than in the spring and summer. In addition to the skylights there is a solid array of small windows just under the eaves which help much in lighting the house completely.



Hollow Tile Hog House on the Fred Wooster Farm in Dallas County, Iowa. This House Is Similar In Many Respects to the Above Hog Houses with the Exception That the Skylights Are Located Half-Way Down the Roof, the Owner Believing that This Will Bring More Sunlight to Every Corner

Hollow clay building tile also forms the material for the walls of this building, which is 24 feet wide, 48 feet long and 5½ feet to the eaves. More than 100 pigs were farrowed in this house during the past spring with but a very small loss. The cost of this house was about $285.

With most farmers an early farrowing is desirable in order to secure the best hogs for a fall market. Just how early this farrowing may take place without the risk of losing a large number of the small pigs, depends largely upon the warmth and sanitary condition of the hog house. The walls of the houses here shown are constructed of hollow building tile. This type of wall makes a warm building because of the insulating properties of the intervening air spaces in the tile which prevent the heat, generated from the sunlight and the bodies of the animals, from escaping through the walls and the cold outside air from getting into the house through other than the proper ventilating channels. Because of this fact it is possible to have little pigs come as early as January, as has been done in some of this type of hog house, and to keep them without artificial heat and without the danger of catching cold.

Another important factor to be considered is that a hog house be thoroughly dry at all times, for sanitary reasons as well as for comfort. With a well-drained floor, there still remains the possibility of the walls becoming damp due to condensation of moisture on the inside wall. With the type of wall used in the houses here shown, this is not possible, owing to the fact that no matter how cold it may be outdoors, the insulating air spaces in the tile prevent the interior wall from becoming cold and condensing the moisture from the warmer interior air.

In addition to warmth and dryness, experience has taught us that we must have plenty of sunshine if we expect to keep the hogs' quarters sanitary. The Iowa hog house has been worked out particularly well as regards this point, the skylights in the roof, and where they have them, the windows on the sides and ends of the house, present a maximum surface for the entrance of the sun's rays, which help the little pigs grow and keep disease germs under control.

Besides being well ventilated, these buildings have other advantages. They are fire-resistant, the concrete floors and tile walls being good insurance against the careless farm hand who drops lighted match or burning tobacco into the bedding. With the proper workmanship these houses will last for a good many years with little or no repairs. The washing of the passing rains and the wear and tear of the elements leave the walls of these houses brighter and cleaner than before, an often unappreciated attribute, for next to practicability, beauty should have a place in the planning of farm buildings.

Pottery Notes

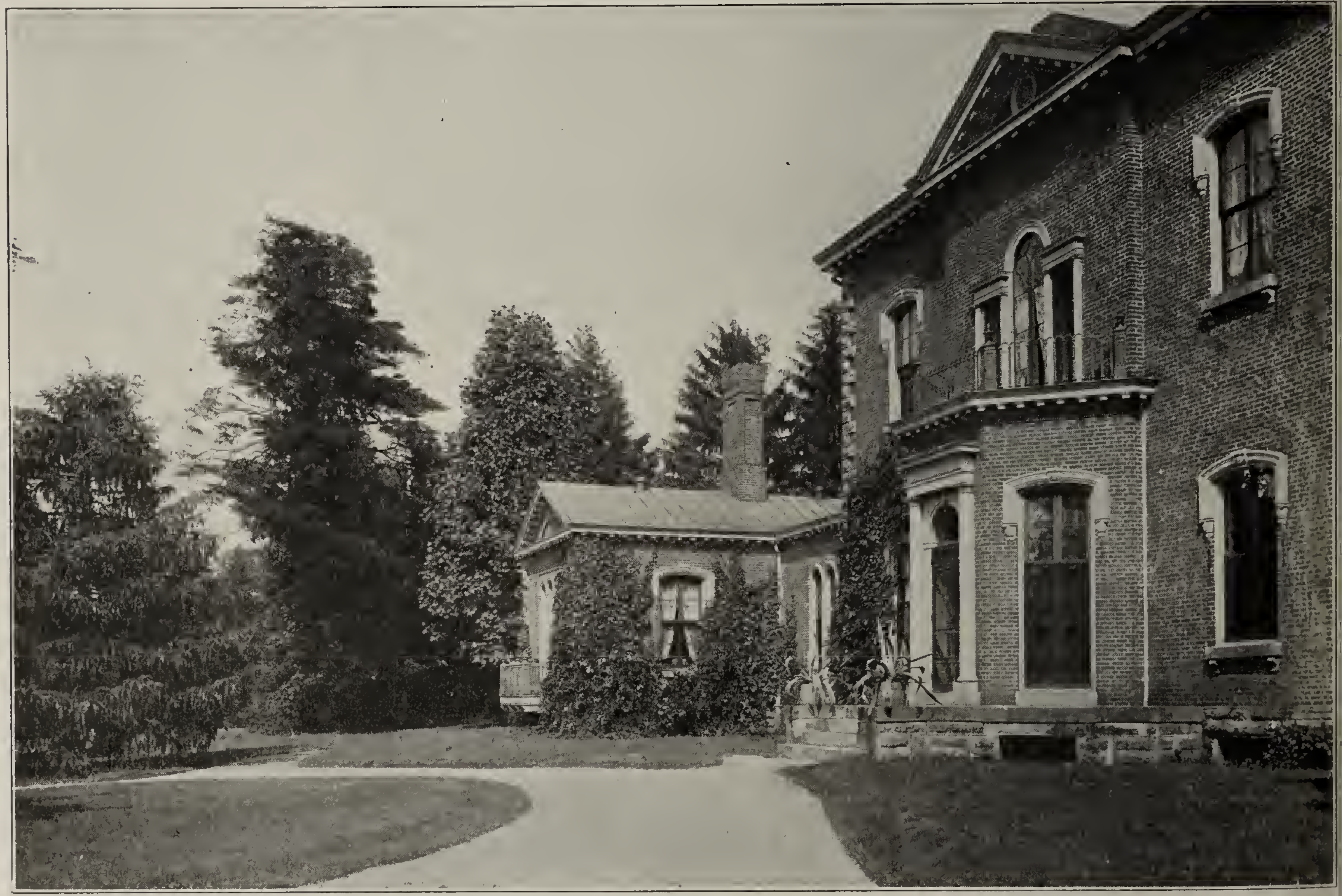
On account of the large amount of new business that is being received by western pottery manufacturers, it is generally believed that the volume of shipments for the balance of the year will be sufficient to make up for the loss sustained during dull summer months, and eventually make the year one of the best in a decade. All eastern Ohio pottery manufacturers hold that September was one of the best months in the year, and that orders on file for October shipment are equally as numerous and as large. In a number of instances certain decorating shops in the East Liverpool (Ohio) territory have been known to work Sundays recently in order to get shipments through on time. This indicates a very healthy condition of trade. The demand for dinnerware is exceptionally strong now, and very heavy business has been received from some of the largest buyers in the country. In one instance an order for ten car loads of dinnerware was received from one customer and from another an order for 50,000 dinner sets has been specified.

It is understood that an effort will be made by the Boosters Club of East Liverpool, Ohio, to have the next annual meeting of the American Ceramic Society held in that city. The matter has been given consideration by Harold B. Barth, secretary of the Club, who plans to extend such an invitation to the Society before long. It has been pointed out that, on account of its association with the ceramic industry, East Liverpool is entitled to at least one regular meeting of the Society.

At Clarksburg, W. Va., where the new plant of the McNicol China Company has been rather inactive during the summer, operations are progressing under a full schedule. This is a new factory, and was only placed n operation last spring.

H. E. Huston, a traveling salesman for the Saxon China Company, of Sebring, Ohio, was one of the eighteen persons injured when a passenger train on the Ohio River division of the Baltimore and Ohio railroad, was derailed at Belleville, W. Va., recently.

William Pittinger, a kilnman at the Knowles, Taylor and Knowles pottery, in East Liverpool, Ohio, has been named deputy state factory inspector for the East Liverpool and Eastern Ohio district.



HISTORIC BRICK MANSION NEAR LEXINGTON, KY., ONE HUNDRED YEARS OLD

This Beautiful Old Brick Residence Is Known to Historians as the Ashland Home of Henry Clay. It was Built Early in the Nineteenth Century, which Would Make Its Age, According to a Conservative Estimate, at Least One Hundred Years. After a Visit to This Patriotic Shrine, Elbert Hubbard Said: "But Ashland Is There Today in All the Beauty and Loveliness that Henry Clay Knew"—a Tribute to the Lasting Qualities and Permanent Beauty of Brick as a Building Material

The Ideal Brick Plant—Electrically Driven

Being a Vivid Description of a Plant That was Never Built, but Which is Well Within the Realm of Possibilities

EDITOR'S NOTE: This article is based upon a letter written by the superintendent of one of the best known face-brick plants in America. It constitutes his conception of what a face-brick plant should be, from the point where the clay is brought to the plant proper, to where the finished product is shipped or stocked. It details the points where variation in color and quality are eliminated, where capacity is assured and where costs are invariable factors. Since the various appliances are built of "the stuff that dreams are made of" they are unusual. Criticism is invited, and, in order that they may not be tinged with personality, the name of the author is withheld.

IT IS SOMETIMES GIVEN to a brick man to dream, and it is not surprising that the mind pictures which come to him in the darkness are of the things that fill his waking hours. And, if his good digestion and clear conscience makes those dreams pleasurable, what better course could they take than that of ideal conditions supplanting those that trouble him during the day?

So the writer of this article has dreamed, and saw a perfect brickmaking plant—a plant that made perfect brick—made them easily and at little cost; a plant where all of the "ifs" and "buts" were eliminated, and in their stead, a series of well planned processes were found. A plant, in short, where the uncertainties that ordinarily beset the brickmaker were eliminated by forethought and wise investment.

It was a plant where fire-clay and shale were available and where brick made from each would be equally profitable; also where, at times, a mixture of both materials would make a product that would command a good price in a nearby and steady market. The daily capacity was 80,000 high grade face-brick.

ELECTRIC LIGHT AND "SAFETY FIRST"

It seemed that the interiors of the plant building were remarkably bright and clean. Incandescent lamps with tungsten filaments filled the rooms with the brightness of day, the light being reflected from the white walls and white coated trusses overhead, into every nook and corner. Life and limbs were further protected by simple devices such as wire guards around gearing and shields about revolving wheels and dangerously located pulleys. "Safety First" in bright red letters was everywhere to be seen, warning the men against haste at the expense of human waste.

A feature of every department was an inter-communicating telephone which placed the superintendent, head burner and even the pit foreman within instant call of each other and of the office, an advantage of inestimable value, especially in case of emergency.

ELEVATED DRY PANS

The power was electricity, the current alternating, the voltage 440. The grinding department consisted of four heavy duty dry-pans of the yoked muller type and were sufficiently elevated to permit the clay which had passed through the screen plates to gravitate to the elevator, which device reduced the wear and tear on the machines which would otherwise have been caused by the prevailing method of setting the pans low and using scrapers underneath.

Above these pans were placed two large, roll-type rock crushers, the spikes or prongs projecting from the rolls reducing the material to a very desirable uniform fineness. The capacity was sufficient to permit the emptying of a large clay car into the crusher at one time by the tilting of the car—no shoveling or picking being necessary.

Beneath the crushers there was installed a large disc feeder which fed the clay to the dry pans, assuring an even flow of material and a consequent saving in power and machinery.

The crushers, dry-pans and disc feeders were driven by 440 volt, heavy duty, slow speed induction motors, which were direct connected, using flexible couplings and friction clutches. The motors were set upon separate foundations. By making them direct connected the expense of belting had been eliminated, power loss minimized and the upkeep expense on the motors themselves brought down to the very lowest possible amount. The placing of the motors on separate foundations served to lessen the vibration and this, in turn, prolonged their life.

BELT TYPE ELEVATORS

The elevators for the dry-pans were of the belt type and very large—much larger than are generally used on brickmaking plants. The belts were 16-in. wide and the buckets 6-in. by 6-in by 14-in., and spaced sixteen inches apart. The pulley at the top of the elevator was 32-in. in diameter, with a 16-in. face, while the pulley at the bottom was 20-in. in diameter, with a 16-in. face. The shafting at the bottom was 2½-in. and at the top 3½-in. with three 10-in. bearings. This wide belt and these large buckets insured against any possible overloading of the elevator, and the large pulley at the top gave the belt an extra good contact.

The elevators were driven by a line-shaft, this in turn being driven by a motor direct connected with a flexible coupling. Each elevator was driven by a clutch pulley of large diameter, with a 14-in. face, and the driven pulley was also of large diameter, having a 14-in. face. The driving belt was 14-in. wide and only about four-ply.

VARYING SCREEN TYPES

In the screen tower, the outfit that was grinding the fire-clay was equipped with a rolled woven-wire inclined screen that had about a $\frac{1}{16}$-in. mesh. On the outfit that was grinding the shale, however, a piano-wire screen was being used. The use of the two different kinds of screens puzzled me somewhat, until it came to me that, since the fire-clay was mined, it was almost certain to come to the crushers in fairly dry condition, while the shale, being from an open pit, would frequently come in very wet.

For shale, the piano-wire screen was found preferable, since it was more easily cleaned, and this overcame the disadvantage of its being more expensive in first cost than the screen that was used for the fire-clay.

The fire-clay from one screen and the shale from the other were dumped onto a distributing conveyor which distributed the ground clay evenly over the entire surface of the storage, thus giving to the clay the most even mixing possible. This storage was an immense shed, carried on brick piers and built as nearly fireproof as possible. In it were two huge bins—one for fire-clay and the other for shale. Above the floor, and extending the full length of the storage was installed a large belt conveyor—seemingly much larger than was necessary. Two large disc clay feeders were employed to feed the ground clay to the conveyor.

The disc feeders were fed by an electrically driven scoop which could handle about 1,500 lbs. of material. This scoop was not mounted upon a track, for the shed, having a solid floor, made it possible to move the scoop easily and quickly to any part of the storage where it was desired to take the clay.

ELEVATED CONVEYORS

The placing of the conveyor above the floor made all of its parts easy of access, facilitating repairs and cleaning. The only reason for having two feeders was, that at times it was found necessary to mix the fire-clay and shale together to obtain certain colors and qualities in the brick that could not be obtained with either material used alone.

The use of the disc feeders gave an absolutely uniform load to the belt and had, it seemed to me, many advantages over the bin system with conveyors beneath the floor which are fed by turning over the planks of which the floor is built. From the standpoint of human safety it certainly had advantages, since we all know that ground material will pack, and that, at times, it is necessary to send a man into the bin to feed the belt. This sometimes means an overloaded belt—sometimes a slipping of the clay will cover the man up.

At the discharge end of the large conveyor which extended the full length of the storage, were two large elevators, which received the clay. These elevators were built on the same principle as those already described, with the exception that they were still larger, being designed to handle a greater amount of material.

DOUBLE MACHINE UNITS

In the machine-room, or, to be more exact, in the building which contained the manufacturing department—were two brick machines, each with an indicated capacity of 150,000 brick daily. This was a double unit, each unit being of almost double the rated capacity of the plant. But its installation gave assurance of continuous running, with machinery that would never be overloaded, and which, consequently, would have long life and few repairs. Added to this was the assurance that, when the plant turned from fire-clay to shale brick, or vice-versa, there would be no necessity for cleaning out the machine, or readjusting the dies, or of making any other accommodation that might be necessary on account of a change in material.

This thought was in mind when the two large elevators were built at the discharge end of the storage conveyor, one delivered shale and the other fire-clay, each to its own machine. Provision was made for the mixing of the shale and the fire-clay at such times as the two were used in combination; and this mixing device was just as positive in its action as were all of the other appliances—at no place could anything be found which left any part of the process to guess, or "feel," or habit. Everything had the sureness of the automatic machine.

The brick machines were driven by a 440 volt, variable slow speed, heavy duty, mill type motor with an outboard bearing, and connected to the machine by a belt. The driving pulley on the motor was large in diameter and about 20-in. wide. The belt was also 20-in. wide and equal to about six-ply canvas. It seems that there was a heap of reason in this. Had a high speed motor been used, the driving pulley would have been of smaller diameter, and this would have necessitated a thicker belt, and that, in turn would have to run very tight. All of this would require more power and would be hard on the belt as well as on the motor. Had the outboard bearing been left off, the tension of the belt would have been apt to wear the bearings on one side, which would increase the motor repair bill. By using the slow speed motor, a driving pulley with a much larger diameter could be used, and by using a wide pulley the belt, although wide, would not have to be so heavy. This would give greater flexibility and a better contact. The pug-mill was equipped in the same way, except that the motor was not of variable speed.

The second brick machine was driven by a slow variable speed, heavy duty motor which was mounted upon a separate foundation and direct connected with a flexible coupling. The pug-mill was a duplicate of the one already described.

AUTOMATIC RELEASE FRICTION CLUTCHES

The motors on both of these outfits were equipped with an automatic release friction clutch which released immediately when the automatic cut-out released, very materially reducing the chances of breaking the machine.

The disc clay-feeder that fed the pug-mills was the same as those commonly used in clay plants, except that it was better developed and arranged so that it could be set to feed the exact quantity of clay required. In connection with it there was a device for accurately measuring and delivering the water that was required for pugging. Through the excellent storage equipment that has been described, clay of a predetermined moistness was delivered to the pug-mills and, with the water measuring device, a never-changing mixture of wet clay was worked up in the pug-mill, day in and day out. By this, an absolutely uniform column was assured.

IMPROVED CUTTING TABLE

The cutting device was built entirely of steel and was stronger and lighter than any cutter I had ever seen. It was electrically driven, direct connected and more sensitive than the tables in common use. There was no buckling or stretching of the clay column, which did not slip on the platform while the machine was making its cut. As a consequence, every brick was of uniform size and perfectly cut. A separate device spaced the brick uniformly, so that a setting machine, designed to take the brick from the separating device, worked to advantage.

The machine last mentioned not only hacked the brick on the dryer car (which was unusually large) but was so arranged that it could reverse them, setting them face to face, or back to back, as desired. The cars were, as I have said, unusually large, and seemed to be built to accommodate about 5,000 brick.

DRIER CARS WITH FIREPROOF BOTTOMS

These cars were built with fireproof bottoms, constructed with flues. From the setting machine these cars were transferred to the driers by means of an electrically driven transfer car equipped with a drum and cable, the latter being used to pull the loaded cars on and off of the transfer car. The cars moved away slowly, eliminating the racking of cars and the spilling of brick.

The driers were heated by exhaust steam from the engine and by auxiliary furnaces fired with producer gas, which was also used in the burning of the brick. Since both sources of heat were under complete control, the drier temperatures were exact, and there was no loss of ware in this part of the process.

A CONTINUOUS TUNNEL KILN

The brick were burned on cars, in two large tunnel (continuous) kilns. In one of these an oxidizing fire was being used and in the other, a reducing fire. The kiln in which the oxidizing fire was being used had a fire section, a cooling section, a preheating section and a section for watersmoking, and in each of these (with the exception of the cooling section) there was an arrangement of separate compartments and a very substantial dampering system arranged in such a manner as to form a combined up-and-down-draft. The firing section was down-draft, the next compartment adjacent to the firing section and through which the products of combustion were drawn, was up-draft; the next compartment was down-draft and so on. The watersmoking section was heated by hot air drawn from the cooling section.

At one end of the kiln there was installed an electrically driven fan and at the opposite end an assistor fan which was for the purpose of blowing a current of air underneath the cars. This latter current cooled the cars and, at the same time, aided in cooling the brick. A clever device prevented the air's passing to the tunnel above. The heat in the fire zone was constant and the kilns were provided with pyrometers and draft gauges as well as with numerous valves for controlling the air that was used for combustion and for the inlet gas. These, with the dampering system in the draft flues, put the kilns under absolute control.

In the operation of these kilns, three cars were put in at the same time that a like number were drawn out and, altho the cars in the kiln did not continuously move, they were dropped down at even intervals so that each car remained in each of the zones for a period of time that was exactly calculated in advance and which was the same as that given to preceding cars.

Both kilns were alike, except that the kiln in which they were using the reducing fire had two firing zones or sections, one being for oxidizing and the other for reducing. The gases from the reducing zone were passed through the oxidizing zone and were there consumed; this saved fuel that would otherwise have been lost thru the stack.

There were ten gas-producers in the battery which furnished the gas for the kilns and the dryers. These producers were arranged on the order of a water-tube boiler.

The stock shed received the cars as they came from the cooling chamber in the kiln. There was no sorting, since the brick were all alike, and immense hacks of uniform brick were being built along the loading tracks. The season was one in which the lightest shipping was done, and when the necessity of accumulating a stock made it advisable to run to capacity, even though the brick could not be loaded from kiln to car.

No grading was done—every brick was "first quality" and like its fellows. The clay storage and its even mixture, the measuring devices at the pug-mills, the accurate cutting, the automatic off-bearing, drier control, uniform burning—every step in the manufacture had been to the end that the product would be as I saw it—uniform, perfect and salable.

There the dream ended. Had it been longer, I might have seen the buildings going up in a hundred cities, all served with a brick of uniform size and color, all perfect pieces of brickwork. I might have seen the orders that came in, without the expense of salesmen hired to explain away the shortcomings of previous deliveries. I might have seen the satisfied smiles of the plant owners, as they looked with satisfaction on balances in their bank books.

I, however, saw none of these things, because there are no plants such as the one that came to me in a dream—no such buildings, nor orders, nor smiles nor bank balances—because these things follow the operating of perfect brick plants, and of these, alas, there are none—that is, so far as I have seen in my waking hours.

A Colonial Portico Paved with "Rovaque" Tile in Variegated Shades and Manufactured by the New York State Sewer Pipe Company, of Rochester, N. Y.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Glazing the Inside of Sewer Pipe

714. *Iowa—We find, in salt-glazing our sewer-pipe, particularly in the smaller sizes and in the shapes, that the glaze does not entirely cover the inside surfaces of the pipe, even where the outside glaze is satisfactory. Is there any way of applying the glaze to the inner surface of the pipe before it is set in the kiln? This way must be other than by dipping, which would, of course, cover the outside of the ware at the same time. The glaze would have to be very inexpensive both in the cost of the ingredients and in preparation, and the process of applying it ought to be sufficiently simple to prevent the running up of a big labor expense.*

The simplest way of applying a glaze to the inner surface of any cylindrical ware is by the pump method, which provides a nozzle set between supports laid across a vat of the glazing material. On these supports the pipe is placed in such a way as to permit the liquid glaze to pass vertically through the entire length of the pipe. A temporary cap can be held in place over the top end of the pipe. The spray of the stream is governed by the form of the nozzle and this would necessitate the changing of the nozzle to accommodate the various sizes of pipe that were being treated. This process necessitates some little extra handling if for no other purpose than to place the pipe, after it has been sprayed, in such a position as to allow the surplus glaze material to drip back into the vat.

In order that the glaze may not be too expensive, it is usual in cases of this kind, to utilize only those substances which can be purchased in powder form. The ideal substance for this purpose is a readily fusible clay which is made into a fine slip and carefully sieved to remove the coarser particles. Sufficiently fusible clays are not always easy to obtain and the addition of a flux is then necessary; the chief fluxes for this purpose are red lead, manganese, soda, potash and borax. The proportions of clay and of flux must be ascertained by trial as they differ in their action on different clay bodies and under different temperature conditions. The glazes generally used have compositions which are within the following limits:

No. 1, Four pounds of clay to one pound of red lead; No. 2, Five pounds of clay to one pound of finely ground manganese oxide; No. 3, Five pounds of clay to one-half pound of soda, potash or borax. It will be found necessary, in some instances, to increase the proportion of the fluxes so that as high as three times the proportion above given will be necessary.

It is clear that some experimenting will have to be done before the most economical and at the same time the most efficient glaze is found, but it is unnecessary to state that these experiments can be made on single samples which, being properly marked, can be examined when they come from the kilns and the results judged thereby.

This answer is given you because you asked for specific information. For good measure, however, we are going to make a statement which, we believe, will be borne out by the facts:

If your ware takes a satisfactory salt-glaze, this glaze should apply equally as well to the interior as the exterior of pipe, the finish of both being the same. The salt is carried to the pipe in the form of a vapor and there is no reason, unless your setting is radically wrong, why this vapor should not penetrate to all of the inner surfaces of the pipe. Since the question of expense has been raised, we would suggest that it would be money in your pocket to secure the services and advice of an expert kiln setter—preferably one who has had experience at yards where the pipe is made under conditions similar to those that you are employing—with the possible exception of a different way of setting the kiln.

To Produce Flashed Face-Brick

711. *Indiana—We are trying the flash system in burning some brick and on our first kiln the test brick showed some desirable colors. We were, however, unable to reduce the temperature fast enough and we lost our color in the slow cooling. We have a ——— round down-draft kiln and fire with flat grates, having a separate flue for each furnace, of which there are five on each side. We use plates on the tops of the flues, as dampers, but we have no other appliances for regulating draft excepting the dampers below the grates. To effect a more rapid cooling system we are contemplating the use of a fan and we thought we would attach the pipe in some way to the round hole at the top and center of the kiln and force the air down thru the brick and out thru the flues. Do you think our plan would give us the results that we desire? Do you think that this draft would increase the heat to melting point in the brick at vitrifaction point or would the tendency be to cool quickly? Of course, we intend drawing the fires and closing doors and furnace dampers before starting the air to the top.*

An article on the burning of dark colored flash brick was published in a recent issue of "Brick and Clay Record."*

In it is recommended that having made the burn as usual until about twelve hours before the usual finishing time (and at which point the brick should be brought closely to complete vitrifaction) the fire should be cleaned. If the settle is going much faster than one-eighth of an inch per hour, the kiln should be cooled until the rate of settle is just a little more than one-eighth of an inch per hour. Then the damper should be lowered as low as possible without cutting off all of the draft, which would mean that the draft should be from 0.03 to 0.05 inches or an actual reading of 0.3 to 0.5 inches. The author says: "If inclined grates are used, fire all the coal at the top and bank it up clear to the arch so as to shut out all of the air. The kiln, under these conditions will soon be full of flame and black smoke will leak out through the upper cracks and peep-holes. Combustion will be so slow that these conditions will easily remain for an hour. After first charge, rake down the fires and re-charge in the same manner, leaving no inlet for the air. The idea is to maintain steady reducing conditions in the kiln until the burn is complete and without cleaning the fires. Using flat grates the procedure is the same except that a heavy charge of coal is thrown in as usual, the fire-doors are shut tight and the ash-door is closed half way.

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*"Burning Black Flashed Brick," by W. C. Rathfon, Brick and Clay Record, June 15, 1915, page 1130.

"This treatment is maintained for about six hours, during which time the kiln should be carefully watched. Trial brick should be drawn every two hours from both top and bottom of the kiln until they all show a dark smooth black. The settle should be watched closely and a time settle curve should be drawn for each burn, in order to be able to foretell how soon the settle will be complete. In all cases the total settle should be as much as the brick will stand without overburning, for the greater the settle, the more certain the success of this process. The damper may be raised for a minute in order to see the cones or draw out the trials, but it should be lowered as soon as possible.

"At the end of six hours, the black flash should have developed and the settle should be at the desired point. In case the settle has not reached this point, the smudging must be continued until it is complete, altho less violent, while, if on account of starting this reduction too late, the settle is complete before the black flash has been completed, then it will be necessary to cool the kiln by completely closing the damper for a few hours."

It is recommended that the cooling be done as rapidly as is possible, down to below a red heat. If the cooling is aided with a fan, the latter should be started just a little before the time that the reduction is ended and the top openings of wickets should be opened wide in order to give the brick as little time as possible in which to return to a red color. It may be necessary to enlarge the top openings of the kiln in order to arrange for this rapid cooling.

We do not know of any instance where your plan of cooling has been tried, although it is in line with what is known as the "back draft system" mentioned in the article which is quoted above. We do not see how it could increase the heat and do not believe that you will have any trouble from that source.

Limestone Pebbles in Surface Clay

707. *Ohio—We are desirous of being informed as to the most practical method of separating small limestone pebbles from a plastic surface clay.*

The above, together with an answer, was published in the October 5 issue of this magazine. Since then a consistent reader has volunteered some additional information on this subject, which follows:

When the limestone pebbles are soft and small, and are what are commonly called concretions, such as those that form in the loess clays and are called "loess puppchen," little dolls in the clay, such pebbles may be safely crushed fine—down to a twentieth of an inch, or better, to a thirtieth of an inch in diameter—and left in the clay. This is especially true when the clay burns to a close, dense body and no water can be absorbed to cause slaking, also when the finished brick possesses great strength to resist expansion. This method is also applicable when the lime is of a porous nature, having little expansion power, but tending rather to close up its own porosity when the molecules expand on uniting with water. It will readily be seen that this problem becomes an engineering study, the idea being to reach a balanced condition in the clay, the force of the lime in hydrating being so minimized as to cause no harm.

With other types of lime pebbles and clays, such treatment will not be sufficient to accomplish the desired result. Glacial clays containing small pebbles or broken bits of hard limestone, must be so handled as to remove the pebbles. Large pebbles can be removed by conical roll crushers, as is done with the Chicago clays, this treatment also being applicable to moist clays as they come from the bank to the machine. Clays containing many small pebbles, ranging down to buckshort and even duckshot size, should be gathered dry and given a complete processing in dry pans with suspended mullers, then elevated to piano-wire screens where they are screened to one-sixteenth or one-twentieth of an inch, giving a clay meal about like the meal used in coarse corn-bread. The tailings should be returned to the dry-pan and the pan cleaned every fifteen to thirty minutes as experience proves is most desirable.

The best test to determine whether the clay is being successfully treated, is to place a finished brick on a steam radiator or in any other dry, warm place and to watch it for a breaking down of texture or "popping" due to slaking of the lime. Striking two brick together to determine the quality of the ring—if there is any at all—is an excellent test of whether or not the brick retains its structural integrity. The dulling of sound when two such brick are struck together as compared with the clear ring of two other brick which have lain out-of-doors for some time, is a good indication of pebble slaking.

Brick Warp in Drying

713. *Iowa—Our brick warp during drying. We have a stiff-mud auger machine. Can you suggest a remedy? Also we would like to know if there is any way to prevent auger lamination.*

There are so many varying factors that may be contributing to the warping of your brick that it is impossible to indicate or even predict the cause of the trouble. It is only possible to enumerate a few possibilities.

A plastic clay is more liable to warp than one which is less plastic. If your material then, is very plastic, it is possible that by adding grog (finely ground culls) or even a small amount of sand to your material, you will overcome its excess plasticity and in this way find a remedy for the warping. A word of caution, given here, may help. In adding the grog or sand, be sure that it is thoroly mixed with your clay. In case you are using more than one kind of clay, be sure that the different kinds are thoroly mixed together. The use of two or more different kinds of material without intimate mixing is very apt to cause warping.

Insufficient tempering may be the trouble; if your clay lacks plasticity, it will be improved by a more thoro tempering and pugging. This is the exact reverse of the proposition first named.

Auger lamination may come from the machine's being poorly designed or worn out or too small. It may be that only a small central bore movement is created in the clay, causing a differential flow thru the die, resulting in aggravated lamination which in turn would tend to increase an uneven shrinkage and warping. So in this way both the warping and the lamination may be caused by the auger.

The nose or end of the auger may be too close to the back plate of the die, thus causing a differential flow of clay, the center flowing faster than the sides. The die may be tapered too much and so hold back the surface flow while allowing the center to flow faster. The lubrication of the die and of the clay column may not be sufficient. The drop between the top of the measuring belt on the automatic cutter and the bottom of the die may be excessive; one-fourth of an inch is sufficient.

There is also a chance that your method of piling the brick on your dryer cars or pallets may cause the warping or it may be that the drying process itself is solely responsible. The chances are, however, that the trouble lies more in the manner in which your clay is tempered than in anything else and it is in this direction that we suggest your experiments.

Answering your last question, we would say, tersely, "Where there are augers there also will be auger lamination." True it is that it has been reduced to so great an extent, in some cases, as to be almost eliminated, but still the truism holds good. The way to "prevent" auger lamination is to reduce it to a point where it will not injure the brick and this is done by securing a properly made auger, designed by an expert who understands your clay.

Wants Books on Architectural Terra Cotta

704. *Connecticut—Can you tell us where we can obtain a book which will give a full description of the processes by which architectural terra-cotta is made, describing the methods of casting the body, the application of the color, the drying and the burning? We have searched the libraries here, and in New York, but cannot find anything that is of value.*

We do not wonder that your search has been unsuccessful, for no such book is published, at least so far as we know. The American Terra Society has published a book made up of several parts which it sells, we believe, for $5.00 complete. This is devoted, however, to details of terra-cotta and the uses, rather than the manufacture of the material. This book was compiled at a great expense, and the money necessary to its publication was subscribed by various manufacturers of architectural terra-cotta.

So far as there being any publication which would list and describe the necessary machinery for manufacturing architectural terra-cotta or give diagrams of kiln construction and methods of burning or descriptions of the proper ways of applying glazes and of the varying degrees of heat necessary to mature them, to the best of our knowledge, nothing of this kind has ever been published.

From time to time short papers have found their way into print, but each of these has dealt with some particular phase of the architectural terra-cotta industry and even though they were all collected and made into one volume, the chances are that there would be many important phases that would remain uncovered.

The reason for this is, perhaps, that nearly all of the elements that go into the manufacturing processes of architectural terra-cotta have been, to a great extent, secret or rather in the possession of but a few men. In this the architectural terra-cotta industry is very similar to that of enamel-brick where for years it has been the practice of handing down from father to son certain essential features, such as the mixing and application of the enamels.

In those branches of the industry where there are a large number of factories, as for instance, in face-brick, paving-brick or hollow tile, the idea of any part of the process being long kept a secret is fast disappearing. The architectural terra-cotta industry on the contrary is one in which but few individuals are in control and will not be fully described for many years.

The Letter Box

A Place Wherein Our Readers May Give Publicity to Their Opinions on Subjects of General Interest

THE best indication of the attention given a magazine by its readers is found in the number and the character of the letters it receives, commenting upon its policies and upon the articles that have appeared in its pages. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring some valuable advice. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

"Switching From Frame to Brick"

Our "Letter Box" would bristle with good things, if more men like the man who wrote the following letter, would do the things that he is doing, and then let us know about it. He is a man who has no need for a pace-maker—he makes his own pace, and makes it good and hot. Best of all, he gets what he goes after. Read carefully what N. P. O'Neal, of the Hope (Ark.) Brick Works, says in his letter of October 5:

Last spring we had you make us an estimate on printing some small booklets, comparing the cost of brick and frame construction; we stated at the time that if we could get to the prospective builder *before* he had started his excavation, we could make ninety per cent of the residence work in our town brick.

Well, that may have looked like a lot of wind and bluster, but bless your sweet life—we have done that very thing. This has been an off year, as all brickmakers can testify, and our little burg with its 6,000 people had only about fifteen brick residences to begin the year 1915 with. Up to this time, however, we have persuaded twenty more—fifteen have finished their brick houses since January of this year, and five have had plans made and are ready to go ahead. The number of frame houses built in the same time is exactly four—and on two of these we were unable to get in touch with the owner until after the contracts were let and the excavation almost finished.

So you see we lost only two jobs out of a possible twenty-two, and that is pretty close to our ninety per cent. In addition to this, two school districts have veneered their buildings with brick and one has put up a building with solid brick walls, despite the fact that there was a decided leaning toward frame.

Even the farmers are sitting up and taking notice, and we have landed one farm dwelling house—an unusual place to use burned clay in this part of the country. Our "near village" folks are also thinking and one has a brick house that is about completed, while whole bunches of them have declared that brick is the only thing they will use—when they get to the point of using any building material.

Now tell me why in the world the brickmakers haven't been doing this sort of thing all of the time? What are they doing now? The answer is easy—lack of knowledge. We find, in Holy Writ, "My people perish for lack of knowledge"—evidently alluding to brickmakers as "people."

We have sent all of the brickmakers in Arkansas a copy of this booklet of ours and *not one of them thought enough of it to even acknowledge its receipt.* Perhaps they didn't think it worth their while. That's where they are wrong—things like this get business—or rather, *make business.* This is not scrambling for what business there already is—it is creating a new outlet.

This has been a decidedly off-year for all of the Arkansas brick plants, and, so far as we know, ours is the only plant that has run the season out without a shutdown. While we have not made quite as many brick as we usually make, we have pegged along and kept steam up all year. Part of that is due to the little booklet and to the kind of selling work that it represents. That is one of the little points that some of our friends overlooked, perhaps, when they received the book.

For 1916 we expect more residence work than we have had in the past fifteen years put together, and this will be due solely to the fact that we have made the people who are within easy shipping distance of our plant *know that there is so little difference in cost between brick and frame* that they *cannot afford to build with wood.* And this is in a country where saw-mills are plentiful and No. 1 common pine framing selling for $12 per M. feet, B. M. Our people are not rich, by any manner or means, yet they cannot afford to built in anything but brick.

Have we cut the price of brick? No, sir! Not us. Brick are cheap at present prices and the percentage above manufacturing cost is small enough—why give away the profit?

The booklet which Mr. Neal mentions is 3¼ in. x 6 in., and has sixteen pages and cover. It is printed in black on fair stock, and cost $27.50 for one thousand. It is called "Counting the Cost Beforehand" and starts with the statement "The Hope Brick Works will back up and guarantee the estimates contained in this booklet and will guarantee that you can build a brick veneered residence of five or six rooms at an additional cost of from $150 to $250 over frame *and do it right, too.*" To this is added an offer to take any frame plan and figure the additional cost of all brick exterior walls, or of brick veneer and to guarantee these estimates, if Hope Brick Works' brick is used. They add: "We are not taking contracts, but will convince your contractor that our figures are right, and will guarantee him against loss on the brickwork."

The booklet is not copyrighted. It is well worth copying—so well worth, indeed, that it will be reproduced in a near subsequent issue of this magazine.

Indiana Manufacturer Wants Brick Silo Booklet

Once more the farmers of this nation are harvesting "bumper" crops, and again the fertility of this field for the sale of his product is called to the attention of the manufacturer of burned clay. Now, after two very satisfactory years from an agricultural standpoint, this message has twice the significance that it had, possibly a year ago, for the reason that last year's crops enabled many farmers to get out of debt, while the enormous yields now being gathered will soon place a great purchasing power in the hands of the rural inhabitant. It is gratifying that at least one brickmaker is alive to the situation and wants to be prepared to meet it in a logical and effective manner. As a suggestion for immediate work, the following letter from James R. Thomas, of the Standard Brick Company, Crawfordsville, Ind., is excellent. He writes, under date of October 10:

> I wish to express my appreciation of your publication and always look forward to every number with a great deal of pleasure.
>
> I have received the impression that you are always glad to have suggestions or ideas from your subscribers, and am taking the liberty of writing you on a subject which seems to me is of considerable importance at this time.
>
> We are all looking about us to find some place where the use of brick can be stimulated. The fact that the farmers have had an unprecedented year would indicate that a campaign on the construction of farm buildings of brick might be particularly fruitful during the coming year. But especially would a silo campaign be desirable just now.
>
> It has occurred to the writer that you might find it advisable to publish a series of articles compiling all available data concerning silos which could be obtained from Government bulletins and other sources of information. Many of your subscribers have, no doubt, sold brick for silos, and have had them erected according to their own specifications. I have no doubt but that they would be glad to submit these specifications to you, together with photographs of the silos which they have built.
>
> The Universities of Illinois, Indiana and other states could give some valuable data bearing on this subject. From these sources it would be possible for you to compile a complete and concise series of articles including one or two plans in detail, showing the best method of building a brick silo.
>
> When this series of articles is completed, it could be published in pamphlet form and sold to various brick plants, with their advertisement on the cover, for local distribution.
>
> We have done some work along this line, but feel that a pamphlet such as has been described would be far more complete than our efforts have been and would, no doubt, be the last word in the way of literature on brick silo construction.
>
> We believe that such a series of articles would be greatly appreciated by all of your subscribers who make common-brick, or who have No. 2 paving-brick to dispose of, and by selling the pamphlet in thousand lots, you could reimburse yourselves for all expense in connection with its preparation. And then you would be doing a greater work—that of supplying your readers with valuable information which they could use to their own profit.

For some time this magazine has been contemplating the getting out of booklets and other literature, covering the use of clay products on the farm. One thing or other has interfered with the carrying out of these plans, principal among these being a doubt as to the demand—not the need, we know that exists—for a number of booklets such as Mr. Thomas mentions. The above letter, rich in suggestion and encouraging in its promise of support, is a good start, and has led to the making of definite arrangements to get the work of compiling these booklets under way at once. This magazine will be grateful for further expressions from its readers, offering suggestions as to what they think should be included in these booklets, and especially declarations of support.

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(Signed) H. H. Rosenberg, Manager

Sworn to and subscribed before me, this 28th day of September, 1915.

F. J. Sauer, Notary Public

My commission expires Sept. 17, 1916.

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

How to Find the Number of Board Feet in Industrial Track Ties

In purchasing ties for industrial track systems, or in taking an inventory, it is usually the custom to figure the price at so much per thousand board feet. To save time and to minimize the possibility of making an error in this calculation, the following table may be of considerable assistance, as it gives the number of board feet in each tie where the dimensions are known. The table also gives the number of ties required per thousand feet and per mile of track when spaced a given distance from center to center.

Area of Cross-Section Inches	Length of Tie							
	4 ft. 6 in.	5 ft.	5 ft. 6 in.	6 ft.	6 ft. 6 in.	7 ft.	7 ft. 6 in.	8 ft.
	Number of Board Feet							
3 x 5	5.6250	6.2500	6.8750	7.5000	8.1250	8.7500	9.3750	10.0000
4 x 5	7.5000	8.3333	9.1667	10.0000	10.8333	11.6667	12.5000	13.8333
5 x 5	9.3748	10.4167	11.4583	12.5000	13.5416	14.5833	15.6250	16.6667
4 x 6	9.0000	10.0000	11.0000	12.0000	13.0000	14.0000	15.0000	16.0000
5 x 6	11.2500	12.5000	13.7500	15.0000	16.2500	17.5000	18.7500	20.0000
6 x 6	13.5000	15.0000	16.5000	18.0000	19.5000	21.0000	22.5000	24.0000
5 x 7	13.1250	14.5833	16.0418	17.5000	18.9583	20.4167	21.8750	23,3333
6 x 7	15.7500	17.5000	19.2500	21.0000	22 7500	24.5000	26.2500	28.0000
7 x 7	18.3748	20.4167	22.4582	24.5000	26.5416	28.5833	30.6250	32.6667
6 x 8	18.0000	20.0000	22.0000	24.0000	26.0000	28.0000	30.0000	32.0000
7 x 8	21.0000	23.3333	25.6667	28.0000	30.3333	32 6667	35.0000	37.3333
8 x 8	24.0000	26.6667	29.3333	32.0000	34.6667	37.3333	40 0000	42.6667
7 x 9	23.6250	26.2500	28.8750	31.5000	34.1250	36.7500	39.3750	42.0000
8 x 9	27.0000	30.0000	33.0000	36.0000	39.0000	42.0000	45.0000	48.0000
9 x 9	30.3750	33.7500	37.1250	40.5000	43.8750	47.2500	50.6250	54.0000
8 x 10	30.0000	33.3333	36.6667	40 0000	43.3333	46.6667	50.0000	53.3333
9 x 10	33.7500	37.5000	41.2500	45 0000	48.7500	52.5000	56.2500	60.0000
10 x 10	37.5000	41.6667	45.8333	50.0000	54.1667	58.3333	62.5000	66.6667

Number of Ties Required Per Thousand Feet and Per Mile of Track

Length of Track	Distance from Center to Center of Ties, in Inches						
	18	20	22	24	26	28	30
	Number of Ties						
1.000 ft.	667	600	546	540	462	429	400
one mile	3,520	3,168	2.880	2.640	2,437	2,267	2,112

Example—How many feet, board measure, are there in the ties required to lay 1,500 feet of track; the ties are 6 ft. 6 in. long, 5 in. x 6 in. in cross-section, and spaced 22 in. between centers?

Solution—1,500 ft.=1½ thousands of feet. From the accompanying tables, 1½×546×16¼=13,308¾, say, 13,500 ft. B.M.

Importance of Good Burning in Brickmaking

In a paper prepared for the last annual convention of the Canadian Clay Products Manufacturers' Association, John B. Millar, of Clayburn, B. C., presented some very good thoughts on burning. While what follows is not complete in any sense of the word, it would be time well spent to read of the writer's impressions and experience on a Canadian brick plant, where problems and conditions are not far different from those on this side of the border. Mr. Millar's paper follows:

I am well aware that a general talk on this subject cannot be generally applied owing to the various products manufactured, out of varying classes of raw materials, and requiring totally different treatment to produce what we all so much desire—number one ware.

There is also such a variety of kilns for the burning of clay products and so many different classes of fuel used, that the subject would easily take volumes in a thorough discussion. There are, however, some general principles which I think can be applied, and it is with these I wish more particularly to deal in the present article.

I remember on one occasion hearing a superintendent discussing the advisability of putting on a man specially for watersmoking the kilns and calling him a watersmoke burner. It seemed to me at that time rather humorous, and I confess I thought him attempting to manufacture an easy job for a favorite employe, but many times since an inspection of kilns has convinced me that considerable improvement might be made on present methods of handling kilns of green ware in their early stages

To my mind one of the most important things to insure good burning in any kiln, is regularity in setting, as no burner, however good, can produce the best results unless the kilns are turned over to him, carefully filled by men who not only know their work but delight in putting that knowledge into practice.

We will treat in this short article of ware which has passed through some system of drying and is put into the kilns presumably dry, which, I suppose, would interest the greater number, and I may also say I wish to limit the article to the more common classes of kilns in use at the present time, that is, down-draft or up-draft kilns.

Assuming the kiln is properly filled, whether the fuel used for starting a kiln be wood, coke, or coal, the fires should be started gently. A very good practice in burning tender clays is to start alternate fires for the first twelve hours, and when the kiln is warmed up and steaming, start the remainder of the fires. It is also good practice to gradually raise the fires after starting. As an example, if we take seventy-two house to completely watersmoke our kilns and at the end of this period have them ready for full fire, the first twenty-four hours should be characterized by gentle or low fires, gradually increased to medium fires for the second twenty-four hours of the period, carefully watching the kiln meanwhile to see that no under-settlement occurs. At the close of this second period, providing nothing out of the ordinary has occurred, the fires may be further raised during the third period of twenty-four hours, until the steam is completely driven off and the kiln is now ready for putting under full fire.

Many methods are used to determine when this period for full fire has arrived. Some people, where stacks are attached to a kiln, look for the steam to leave the stack entirely. This, while it may be a safe method, is not always economical. I have seen kilns which were still showing steam from the stack, when ready to close up, the burning being completed. This was due to dampness in the flue running to the stack, or possibly the stack itself being out of use for a considerable time, during which the walls had become thoroughly saturated with water, and had dried off only as the heat passing from the kiln became great enough to drive out the moisture.

A method frequently adopted and one which proves quite satisfactory, is inserting a rod of iron in the floor of the kiln below the ware, allowing it to remain about two minutes, and if moisture is still in the kiln, the rod will be dripping when withdrawn from the kiln. If, on the other hand, the rod is dry and beginning to get warm, you are quite safe in deciding that no steam remains in the kiln. A little experience, even with this crude instrument, will soon demonstrate its usefulness, and will, in a short time, come to be considered indispensable.

When putting a kiln under full fire, as the early period of the burning stage is called, I consider it good practice, on all goods, to fire steadily, as by "going after" a kiln in its early burning stages, even if the ware will stand such treatment, a crust is formed on the outside of the brick which will not permit of the ware being burned thruout, except by a considerable raise of temperature over what should be necessary to burn the ware, resulting in a consequent loss of fuel.

By holding a kiln under steady heat until it is showing thruout the bottom of a down-draft kiln or top of an up-draft kiln, and, on this stage being reached, a few sharp fires permitted to burn down so as not to injure the parts of the kiln exposed to the most intense heat, will be found very effective.

To decide when to cease firing is a very important subject, and many methods have been adopted—pyrometers, cones, measuring settlement or shrinkage, taking out test pieces or trials, and judging the heat by sight, etc. Any or all of these methods are not too expensive or troublesome if proper results are obtained, but to some clayworkers some of them might be considered too expensive.

There are at least three of the above methods within the reach of all and they are fairly accurate.

By finding out the temperature at which our clays burn we can get pyrometric cones very cheaply now, and by using from four to six cones in each kiln, placed in such a manner as to show what progress the kiln is making, it can easily be determined when the limit for burning the ware has been reached.

I would strongly recommend this to all clayworkers, and also the plan of taking the shrinkage on all kilns as well as taking out test brick before closing a kiln. It is much easier to insure a kiln being right before the fires are put out, than to correct a mistake after the kiln is cooled.

It is impossible in an article of this kind to lay down rules on how to burn all classes of ware; but by using all of the means of assuring success that are within easy reach, and which have proved helpful to others, coupled with a liberal supply of good sense, I feel that some measure of success, at least, is sure to attend your burning process.

A Simple Wrench Quickly Made

Where nuts are used which require frequent tightening or removal, a socket wrench may be the means of saving considerable time in the performance of this task.

A wrench for a hexagonal nut that can be quickly made is fashioned out of a piece of ordinary tubing with an outside diameter equal to the dimension across the flats of the nut and a length of about five inches. This piece of pipe or tubing is first thoroughly annealed and then the nut which the wrench is to fit is heated to a red heat. The tubing is then hammered down over the nut to make it the desired shape. The nut will contract a little in cooling, sufficient to allow the wrench to slip off of it freely. Another piece of tubing may be used as a handle for this wrench.

Zinc Prevents Scale Deposit in Boilers

European engineers have found a use for zinc which is comparatively unknown in this country. It consists of employing it as a means of preventing foam and the deposit of scale in boilers. Plates of pure zinc, 6 inches long, 4 inches wide, and ½-inch thick, each with a ½-inch hole punched through the center, are being shipped abroad in large quantities. In using these, a steel rod is passed through a side of a boiler and the plates, separated by steel or iron washers, are strung on it. The zinc and iron members are constantly in contact and form a bar extending across a boiler, within which a galvanic current is created which prevents scale formation. It is stated that this keeps a boiler clean for an indefinite period without requiring the use of chemical agents.

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

IN ALTERNATING CURRENT motor installations it is common practice to provide means for automatically disconnecting the motor from the circuit in the event of sustained overload. It is also usual, except in the case of some small motors which can be thrown directly on the line underload, to cut the motor out of circuit when the line voltage drops to a certain predetermined percentage of normal. Protection against overload is to prevent too great heating and consequent damage to the motor. Cutting the motors off the line when the voltage drops sufficiently to cause them to stop or be largely reduced in speed, prevents the occurrence of various disturbances that might arise when the motors suddenly draw current greatly in excess of normal on the resumption of the regular line voltage.

Type P, Form C-46, Series Inverse Time Limit Overload Relay

To provide for both overload and low-voltage protection of a.-c. motors up to 2,500 volts and 300 amperes, the General Electric Company has developed a new relay for use in conjunction with the usual type of G. E. low voltage release. The relay consists of a solenoid and plunger, a set of contacts that are opened when the plunger rises, and a time delay arrangement, known as an inverse time limit dashpot, for retarding the upward movement of the plunger. The dashpot consists of a small covered cylindrical vessel partly filled with a special oil, and a disc containing an opening whose size can be adjusted outside of the dashpot by a needle valve on the lower end of a rod between the disc and the lower end of the solenoid plunger. The size of the opening in the disc determines its resistance to moving upward in the oil when the relay operates, and thus the time delay between the beginning of movement of the plunger and the opening of the relay contacts. The needle valve can be adjusted to give a delayed opening of the relay contacts of from ten seconds to five minutes at 25 per cent overload. The current at which the relay will operate can be varied from normal to twice normal, depending on the setting of the plunger.

Under operating conditions the relay coil is connected in series with the motor circuit and the low voltage release coil, across one phase in series with the contacts of the relay. Thus when the current in the circuit remains at a point equal to or greater than the relay current setting for a period equal to the time setting of the dashpot, the plunger will rise, open the relay contacts, cut current of the low voltage release coil and cause the motor circuit to open.

This relay is mostly employed with motors using self-contained compensator control, but sometimes for switchboard service when both low voltage and time delay overload protection are required. Here series relays replace the secondary relays, current transformers and oil switch tripping coils otherwise required.

Although as previously mentioned, the current calibration is from normal to twice normal, and time adjustment from ten seconds to five minutes on 25 per cent overload, the delay recommended is about fifteen seconds at the starting current of the motor. This affords ample protection to the motor against damage from overload or single phase operation, but prevents the circuit from being opened while the motor is starting.

The new relay is a vast improvement over the one previously manufactured. The contacts, dashpot and calibrating tube are inclosed by dust-proof stamped steel covers. Current and time adjustment are accomplished outside of the dashpot simply with the aid of a screw driver. The settings are constant, for an adjusting nut is locked in place after each setting is made.

Du Pont Announcement

The following announcement, which has recently been sent to the trade, will undoubtedly be of interest to clay-products manufacturers generally, as the company in question is so well known:

"Effective today (October 1, 1915) the property and business of E. I. du Pont de Nemours Powder Company of New Jersey has been sold and transferred to E. I. du Pont de Nemours & Company of Delaware, a corporation organized for the purpose of taking over and carrying on the business.

"The new company assumes all liabilities of the old company (except capital stock and funded debt) and will carry out all contracts of the old company, there being no change in the personnel of the management, operations or methods of handling the business. It will issue capital stock to the amount of $120,000,000.

"E. I. du Pont de Nemours & Company, the new corporation, bears the name of the original Delaware concern, established 1802 by E. I. du Pont de Nemours. The return to the original name is a tribute to the founder and emphasizes the long establishment of the business.

"The incorporation was made in Delaware because Delaware was where the business originated and the main offices are located in Wilmington.

"Although the Du Pont facilities for manufacturing and selling explosives have materially increased, explosives are no longer the only products of the organization.

"Our chemical business has entered many industrial lines and further extensions are inevitable owing to American requirements and increased manufacturing facilities available after the war.

"Du Pont Fabrikoid Company, controlled by us, is making exceptional progress, and enlargement of its productive capacity has been and probably will be continuous as a result of steadily increasing sales.

"Our customers need anticipate no changes in their relations with us, except for the better. It is our earnest hope that improved financial and manufacturing facilities will not only ensure a continuation and increase of mutually advantageous relations with present customers, but will also afford us the pleasure of serving many new friends."

The announcement is signed by E. I. du Pont de Nemours & Company, Pierre I. du Pont, president.

The Manufacture of Sawyer Belting

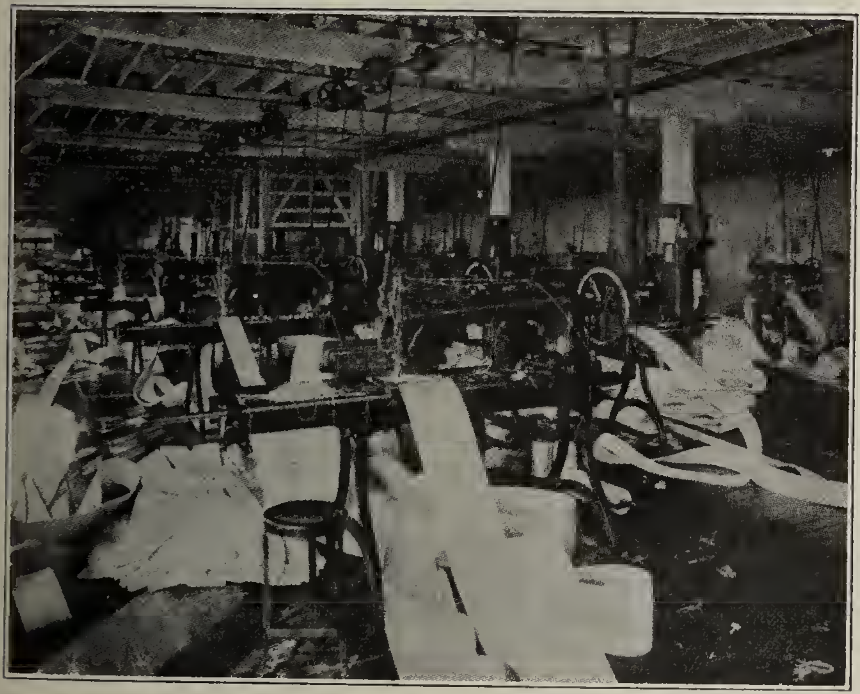
In a recent issue of the "Sawyer Belting Booster," appeared the following story on the manufacture of belting. The use of belting in the clay industry has reached enormous proportions, and the inside story of its manufacture is interesting.

"On the quality of the raw material depends to a large extent the finished belt. Therefore, we make sure that only the best of cotton duck goes into our product. We have this duck closely woven to our specifications. Knowledge gained from years of manufacturing these belts enables us to specify the number of picks per inch in the warp and filler and their corresponding number of strands, also the close weave, insuring greater tensile strength.

"The folding of Sawyer Belts, up to fourteen inches wide, is done by machine, which insures straight and even folding for the entire length. This is another important factor that goes toward making Sawyer Belts run true on the pulleys.

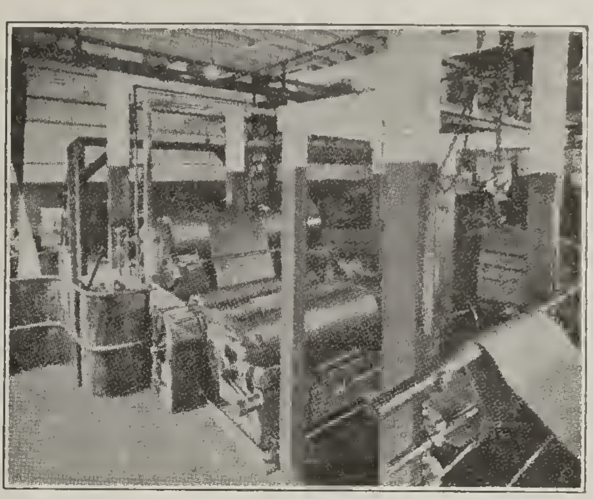
"The belts are then stitched in parallel rows one-quarter of an inch apart with our own stitching twine. Straight stitching is still another step toward true running belts.

"The waterproofing and painting are two separate and distinct processes. First, the belts are immersed in a compound which makes them impervious to the action of steam, oil, gases and the elements. Thru this compound they retain their natural elasticity during the entire life of the belt.


Where Sawyer Belts Are Made

"The belts are then painted by dipping them in our specially prepared Sawyer Red Paint. The next very important detail is the calendering and stretching. Each belt is put thru a very heavy calendering machine while it is still wet. It is thoroughly stretched so that all the stretch is taken out before the belt is used.

"The heavy rolls calender the belt while it is being stretched, making a surface that is true and even. Each process in the manufacture of these belts is carefully worked out with the idea of making a better belt.


Calendering and Stretching

"No article regarding Sawyer Belt would be complete unless some mention were made of Sawyer Belt Dressing and Sawyer Elastic Belt Paint. The dressing is made in two forms, the paste dressing and "Sabeco Stick." Both are made expressly for use on canvas belting and are guaranteed to keep belts soft, pliable and to act as a simple and inexpensive preservative. The better traction secured prevents slipping and consequent wear."

Valuable Facts About Gas Power

"Bruce-Macbeth Gas Engines and Some Valuable Facts About Gas Power" is the title of a new booklet just issued by the Bruce-Macbeth Engine Company, 2134 Center Street, N. W. Cleveland, Ohio.

Clayworking plants that are interested in reducing present power costs, as well as gas engine operators who are interested in getting the most efficient results from their equipment, will find this booklet of interest.

It gives in concise form the principal advantages of gas power, together with some facts and figures regarding the results Bruce-Macbeth gas engines are giving in different kinds of service. It also contains sections on Producer Gas Plants, Bruce-Macbeth Engineering Service, How to Obtain Maximum Efficiency from Gas Power Plants, the Meriam Steam Process, the new process discovered by J. B. Meriam, engineer and designer of the Bruce-Macbeth Engine Company, whereby low pressure steam for heating and industrial purposes can be generated as a by-product by the ordinary gas engine (this point is particularly valuable in the plant needing steam to heat or lubricate the dies); also a section of gas engine data for the operators of gas power plants. The booklet is illustrated throughout with reproduced photographs of Bruce-Macbeth installations. Copies will be sent free on request made to the Bruce-Macbeth Engine Company, 2134 Center St., N. W., Cleveland, Ohio.

Finds Factory Too Small

In these days of stress, when purchases are made solely on merit, it will be interesting to note that the new factory built last year for the Brown Instrument Company, of Philadelphia, has been outgrown and an addition has been contracted for that will give 50 per cent increase in floor space.

The Powersteel Truckline is a steel wire towline designed for heavy towing. It is the Big Brother of Basline Autowline known to autoists as "the little steel rope with the big Pull." Both are of Yellow Strand Powersteel and manufactured by Broderick & Bascom Rope Company, of St. Louis.

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

I can tell you whether it is the water—clay—or coal—that causes
THAT WHITEWASH ON YOUR WARE
if you will send to me small samples of each. The charge is very moderate.
H. M. DEAVITT, 209 S. LA SALLE ST. CHICAGO, Ill.
Ceramic Chemist

The DEWEY 5-Ton Locomotive
It never balks on heavy loads or grades
Why not let the Dewey do *your* work?
DEWEY BROS., Inc., Goldsboro, N. C.

DRYER CARS
ALL STYLES—ALL SIZES
H. W. GERLOCK, Huntingdon, Penna.

Watchman's Clocks
Approved Systems from $10.00 up
NEWMAN CLOCK COMPANY
181 Fulton St., New York 564 W. Washington Blvd., Chicago

Excessive Freight Rates
The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.
Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.
These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.
IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

BRICKMAKERS' HEADQUARTERS
FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A.

IF YOU HAVE A WANT
Make it known in "Brick and Clay Record's" Classified Columns, and get results.

The Semi-Monthly Trade Review

SURPASSING August's remarkable and highly encouraging showing, both in number and in size of increases, the report on building construction in the United States for the month of September is by far the most interesting development of the past two weeks. Permits taken out in one hundred and six leading cities for the month just closed, cover 22,433 buildings involving an estimated cost of $65,980,889, as compared with 19,440 buildings valued at $47,373,902 for the same month a year ago, *an increase of thirty-nine per cent.*

The increases shown in widely scattered sixty-nine cities, are not only found where munitions of war are being made, but where the crops are good, where staple industries such as the manufacture of steel are again active and in the centers of large population, where a revival in building construction is a necessity to meet the growing demands.

Of the large cities, Chicago shows a gain of seventy-four per cent, Boston one hundred and eight per cent, Philadelphia one hundred and sixty-two per cent, while New York, including the Boroughs of Manhattan and Bronx, shows a loss of fifteen per cent. An explanation of the last-mentioned city's poor showing may be found in the statement that New York's record, in so far as activity is concerned for this year, has already been established, a large number of permits having been taken out in the earlier part of the year.

Perhaps the best indication of the healthy condition that prevails in building construction is a gain in cities like Milwaukee, Wis., for instance, which shows an increase of one hundred and forty-five per cent; Detroit with sixty-seven per cent; Cleveland, ten per cent; Washington, D. C., one hundred and forty-nine per cent; Cincinnati, ninety per cent; Indianapolis, two hundred and five per cent; San Francisco, thirty-one per cent; Buffalo, thirty per cent; Minneapolis, seven per cent; St. Louis, twenty-two per cent; Kansas City, thirty-seven per cent; Toledo, ninety-five per cent; Atlanta, Ga., two hundred and eighty-one per cent, and so on down the list to the smaller cities—all show a substantial increase due to a steady improvement in general business conditions.

From a review of developments during the past few weeks, it would seem as though the above report on building is but one of the many highly favorable signs that have come to hand indicating a most satisfactory state of affairs in the nation's business. Current trade reports reflect the best conditions and prospects in many weeks, few obstacles to progress now being in evidence. The removal of important restraining influences has imparted a needed stimulus to new enterprises, and the launching of many long deferred undertakings shows a widespread strengthening of confidence.

Cotton has taken another jump in price, going to thirteen

SAY, I SAW IT IN BRICK AND CLAY RECORD

and one-half cents within the past week, or nearly double the price prevailing at this time last year. A prominent brick manufacturer of the South predicts that if this figure holds for sixty days, the farmers of the South will be out of debt. Certain it is that the general betterment of conditions throughout this section of the country, largely expanding its debt-paying and purchasing ability, is one of the principal factors in the upturn of commercial and industrial activities.

Another indication that prosperity is not on its way, but is here, is the big decrease in the number of idle cars standing on the tracks of the country's railroads. The American Railway Association reports that on October 1 the surplus of idle freight cars on the lines of carriers in United States and Canada was 78,799, as compared with 185,000 on September 1, a decrease of 106,310 during the month. While the extent of this decrease may be attributed to the movement of a bumper harvest of grains, it is significant that on October 1 of this year the number of idle cars decreased by 25,000 as compared with the corresponding date of 1914.

Other signs of the general improvement in business conditions are numerous, prominent among those being a decrease in the commercial death rate, September figures clearly reflecting this improvement. With the exception of August, the mortality was at its lowest point of the year during September, defaults being less numerous than during the same period last year, when over two hundred more firms failed. Wholesale commodity prices are now at the highest level in over a year, this rise reflecting the broadening of demand in consumptive channels. Rail orders for the month of September totalled 404,000 tons, the largest monthly total in three years. Clearings through the banks for the week ending October 9 in the principal cities of the country showed a very marked expansion, the total amounting to $4,367,979,190, as against $2,324,645,201 the same week last year and $2,933,144,259 the corresponding week in 1913, gains respectively of 87.9 and 48.9 per cent.

Turning to clay products and their existing prices, brick on the New York market has been having, to say the least, a very interesting career. The month opened with a weak demand at the six dollar level, to which price it had been boosted during the closing days of September. On October 2, the brick manufacturers—so the dealers say—threw a bomb in their camp by advancing the price of brick from six to seven dollars per thousand. Amid charges and counter charges, and threats, this price was quoted until October 11, when the market showed a stiffening and was later reported as being well sustained at the seven-dollar level.

To the many favorable and encouraging signs above set forth regarding present financial and industrial conditions in this country, little need be added. It is only necessary for the brickmaker to connect up these signs with his business and to see where they offer encouragement and hope. Increased activity in building means a bigger demand for clay products, and larger sales with an accompanying increase in profits means a more cordial reception at the bank.

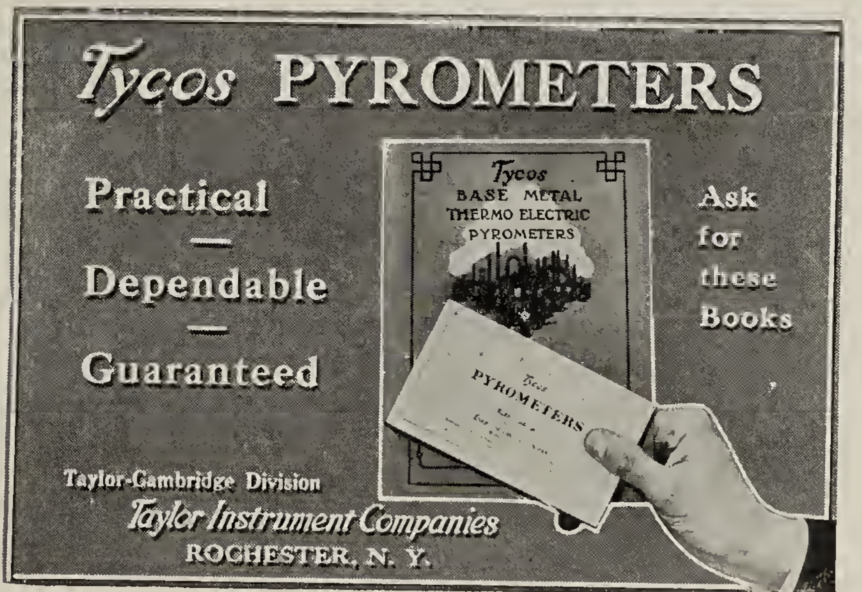
For months, wise men have said, with a knowing look on their faces, that prosperity was on its way and would get here sooner or later—most of us thought later. Prosperity is here!

North Carolina Brickmaker Increases Capacity

Isenhour and Sons, brick manufacturers with plants at Whitney, East Spencer and near Durham, N. C., have started to remodel the Whitney plant with a view to doubling the capacity. The company has been receiving large orders for dry-pressed brick to be used in the erection of manufacturing plants, schools and other buildings, and because of insufficient capacity, has been compelled to refuse orders for about 500,000 brick. The capacity of the Whitney plant is therefore being increased.

WHAT'S YOUR ADDRESS?
FITS YOUR LADLES —we want to know it, for your good—and ours—we want to send you some new information on babbitt—perhaps a trial order—for
Repairs and New Installations
within the next few months are going to require quantities of the very best babbitt.
That means NUGGET—15c per pound FITS YOUR LADLES
THE CLEVELAND ALLOYS CO.
CLEVELAND, OHIO

STRENGTH UNIFORMITY DURABILITY REG. U.S. PAT. OFF.
Even a tough steel wire is only as strong as the loop. Our wires are made of Swedish steel, and the loops have the three points of strength as noted.
For Cutting or Screening use wires that are twisted, wrapped and soldered
THE WEBB WIRE WORKS
NEW BRUNSWICK, N. J.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Practical — Dependable — Guaranteed
Ask for these Books
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ROCHESTER, N. Y.

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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories
Offices: Steubenville, Ohio
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BUCKEYE MEANS BEST BEST MEANS BUCKEYE
All Sections from 12 lb. to 40 lb. per yard
Write or wire us when in need
No order too large to handle promptly or too small to receive immediate attention

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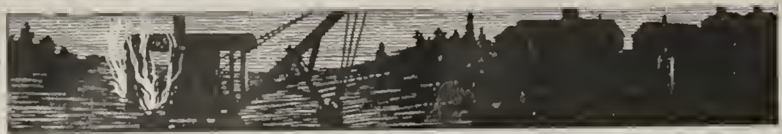
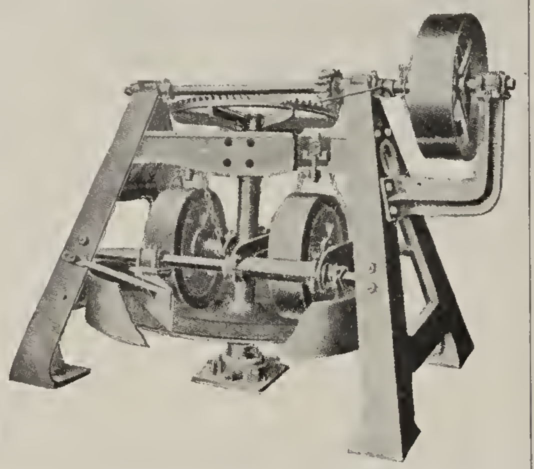


A Fire
the oil—the gasoline can
No Shale For Days
In the long hours of the quiet night
THINGS will HAPPEN
A Hardinge Watchman's Clock
with one station on the shovel
Protects—Prevents—It Saves
The System is Only $36.00
Our Booklet Tells

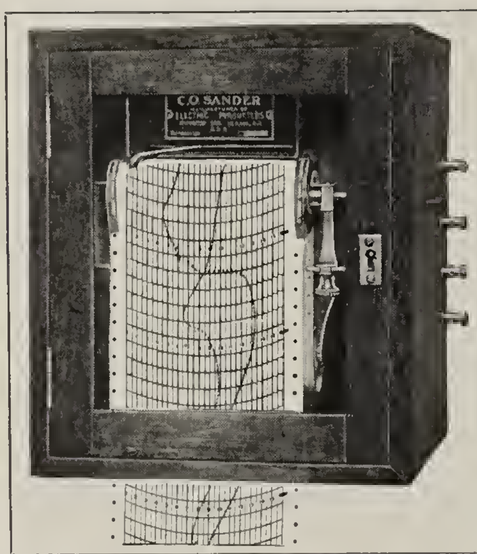
Hardinge Bros., Inc., 1760 Berteau Ave., Chicago
Approved and labeled by National Board of Fire Underwriters.



THE EAGLE DRY PAN

Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA



The Burner

or the fireman who knows that a pyrometer is recording his good or his poor efforts—all night long—is bound to strive harder—he wants his record to show *clean*, it is human nature—just think that over—it is only one advantage out of many.

The Sander Instrument Co.
136 19th Ave., Irving on, N. J.

Do you carry extra chains?

Have you insured your shovel output by carrying in stock extra lengths of Woodhouse Specials—all ready for the time when you will need them—Quick ? You should—you know why!

Woodhouse Chain Works
Trenton, N. J.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

CALIFORNIA

Y. V. Vodra of Los Angeles, Cal., has sold his interest in the Los Angeles Mantle and Tile Company to J. W. Broxholme.

Manager Berg of the Port Costa (Cal.) Brick Works reports that, notwithstanding the scarcity of orders during the past summer, he has managed to keep a steady force employed and has been able to dispose of the output.

The Porterville Magnesite Company of San Francisco and Porterville, Cal., has laid the foundation for a kiln on its property near Porterville and will start building the kiln within a few days.

The Remillard Brick Company of San Jose, Cal., is supplying the common-brick, and the Livermore Fire Brick Company the fire-brick, for the erection of additional kilns at the magnesite mines on Red Mountain near Livermore, Cal.

The owners of the Alpine quicksilver mine near Hollister in San Benito county, Cal., have opened up a good deposit of fire clay only two miles from their mine and have put in a plant for the manufacture of fire-brick. About three hundred thousand brick have been made within the last few weeks, and a sufficient quantity will soon be ready to supply the needs of the company for large furnaces and condensers used in the handling of quicksilver. Whether or not the brick plant will sell its product to outside customers has not as yet been decided.

In Los Angeles, the month of September, so far as the value of building operations is concerned, does not show up favorably in comparison with the preceding months of the year or for the same period of the preceding year, being only $825,000 for the month, the lowest for the past three years with two exceptions. Builders, however, claim that this falling off indicated in the record is more accidental than otherwise, as the situation is not much different from that of the previous month, when the record ran over a million dollars.

The building situation in San Francisco took a turn for the better during September. Brick manufacturers and others have realized that the general improvement in business conditions was beginning to be reflected in an increased demand, but it was not until the official building records for the month were made public by the building department that the industry realized the full extent of the change that had taken place. The records show that the total valuation of permits for building issued during September was well over the million dollar mark, running practically a hundred thousand dollars better than for the month of August preceding, and over two hundred and fifty thousand dollars more than for the month of September, 1914. While no very large buildings were included in this total, a considerable amount of brick and terra-cotta will be used, about half of the total valuation being placed to the credit of buildings designated as "brick."

COLORADO

W. F. Ervin, of the Denver (Colo.) Pressed Brick Com-

SAY I SAW IT IN BRICK AND CLAY RECORD

pany, recently returned from a vacation spent in the mountains.

DISTRICT OF COLUMBIA

Bids are to be opened by the Purchasing Officer of the Panama Canal at Washington, D. C., on October 20, for 103,000 fire-brick, 30,000 common red building brick and 100,000 lbs. of fire clay.

The New Washington (D. C.) Brick Company, which was recently reorganized, and which was to have begun operations a few weeks ago, is not yet open for business. It is understood that the company is waiting to get orders for a certain amount of brick in advance before resuming work.

In accordance with an announcement made recently in an article on the coming use of brick for post offices, Secretary of the Treasury McAdoo has left Washington for an inspection trip during which he will study public building problems. It was stated at his office that, while the Secretary would like to visit all cities where there are public building problems, this would be impossible, because of lack of time. The Secretary was accompanied on his departure by Byron R. Newton, Assistant Secretary of the Treasury, and directly in charge of public buildings.

GEORGIA

The property of the Macon County Brick Manufacturing Company, Macon, Ga., was sold at public auction October 15. The property consists of two hundred and thirty acres of land, one hundred acres of which is suitable for the manufacture of common or fire-brick. The plant is complete with engines, boilers, dryers, brick machinery, steam shovels, etc. Four hundred thousand brick were ready for burning. Sealed bids accompanied by certified check for ten per cent of the bid were received by the trustee and opened immediately after the public sale. The appraised value of the property was $23,673.

A movement to make Macon (Ga.) a great clay center was begun on October 5, when the clay industry was made the chief topic of discussion at a special meeting of the Chamber of Commerce. T. Poole Maynard, an expert geologist, who has been in the field for several months ascertaining what pottery clays are available in and around Macon, made his report at this meeting. It has been estimated, according to the Macon Chamber of Commerce, that raw materials can be furnished here for much less than they are being secured in other pottery centers, owing to a low freight rate on this commodity. Incidentally, it was shown that the value of pottery sold annually in the Southern states is $11,000,000.

ILLINOIS

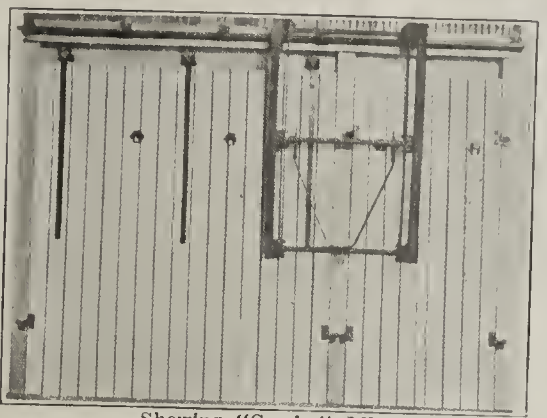
A new kiln will probably be built at the Hansen Brothers brick plant, Princeton, Ill., within the next few months.

F. H. Myers, president of the St. Anne (Ill.) Brick and Tile Company and principal stockholder in that concern, sold his interests recently to W. H. Cote, his partner, and will leave the business to interest himself in another project.

C. Solfisburg and Sons, brick manufacturers of Aurora, Ill., are planning to make a number of improvements at the company's plant during the coming winter. A change in the method of treating the clay is contemplated, eliminating the crusher and screens. A special machine is being devised by the owners to accomplish the work.

Following the decision, made about five months ago, of the La Salle (Ill.) Pressed Brick Company to stop making a smooth face-brick, and to turn its attention to rough-texture

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

Will handle doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

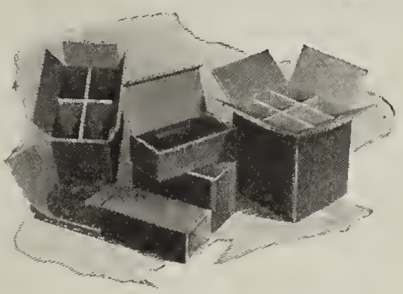
Dry Kiln Door Carrier Co.
Indianapolis, Ind.

PYROMETERS

One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

The Brown Instrument Co.
Philadelphia, Pa.
New York Pittsburgh Chicago

IT IS DONE SO EASILY



Examine the illustration and see how convenient we have made it for you when sending out samples—and yet how thoroughly the corners and edges are protected from chipping.

The condition in which your brick arrive may decide whether or not you get that order. Hinde & Dauch Boxes are Convenient, Economical and Durable.

The Hinde & Dauch Paper Co., Sandusky, Ohio
Made in all sizes for all purposes

PERFORATED METAL SCREENS
As required for BRICK MAKERS USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.
HMCo

New York Office
Room 1028 Cortlandt Building

Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.

Pyrometers

We won't attempt to teach you your business. You have been at it too long. We can and will prove that we know ours and particularly that portion of ours which applies to yours. Let us send you a copy of "Pyrometer Facts."

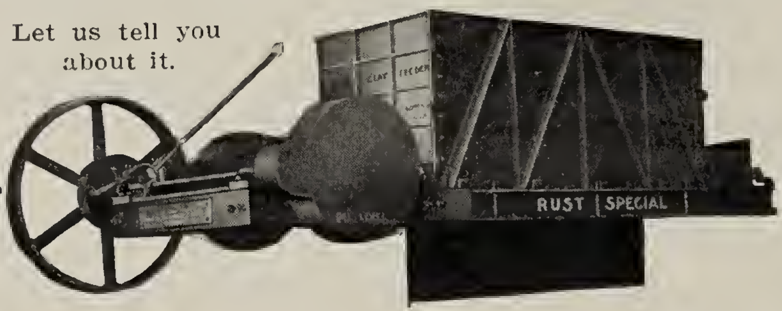
The Stupakoff Laboratories
Pittsburgh, Pa. 10

An Investment

That's what the **Rust Special Clay Feeder** is. It pays for itself and earns big dividends. It helps you to produce better ware at reduced cost.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Let us tell you about it.



Sand-Lime Brick Plants and Machinery

Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

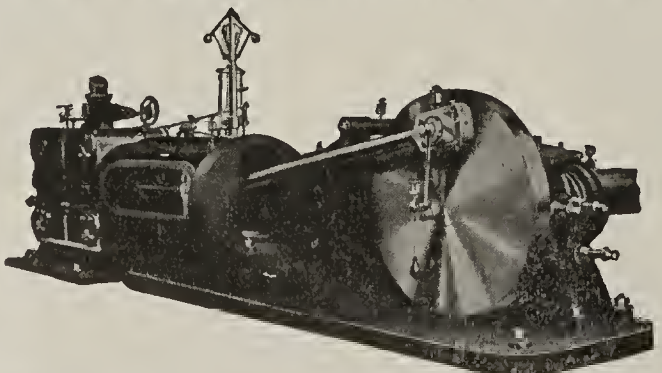
Let us Serve You.

Jackson & Church Company
Saginaw, Michigan

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS

Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA



face-brick, the company has been enjoying a season of prosperity. A new dryer with a capacity of 25,000 brick necessary in the manufacture of the newer product, is about completed at this plant.

INDIANA

The contract for the paving of the north side of the public square in Rockville, Ind., with brick has been awarded to Edward Patton, of Veedersburg, for $5,225.

Edwin Junghaus has purchased from John Suelzer, Jr., receiver for the Maumee Brick and Tile Company, Fort Wayne, Ind., all of the real and personal property of the company for $3,100.

The Krick-Tyndall Tile Company, Decatur, Ind., has about completed the construction of a new kiln at its plant. George Krick, superintendent of the plant, has been overseeing the erection of the kiln.

IOWA

B. F. Tramp, of the firm of L. E. Tramp and Tramp, Audubon, Ia., manufacturers of brick and tile, was killed recently at the company's plant while trying to block a moving freight car.

KENTUCKY

George W. Slaughter of Murray, Ky., a dealer in brick and other building materials, recently suffered a stroke of paralysis.

The Nashville Mining Company, with a capital of $11,000, has been incorporated in Louisville, Ky., with the intention to operate mines and to buy and sell clay, as well as coal and other mineral lands. The incorporators include G. W. Harding, B. H. Farnsley and Clarence Dallam.

The Hillenbrand Brick Company, Louisville, Ky., is now celebrating its thirty-fifth anniversary, having been established in 1880. The company makes use of the slogan, "When you build, build with brick," with the result that many people have been acting on the suggestion, and using Hillenbrand brick.

That the City of Louisville has a high regard for brick as a paving material may be gained from the fact that contracts for this type of pavement are constantly being awarded. The city has called for proposals for the paving of a section of West Chestnut street this fall, which work, it is estimated, will cost between $5,000 and $6,000.

Brick is enjoying a good demand in the smaller cities of Kentucky. In Middlesboro, the First Baptist Church is putting up a $20,000 brick structure, while in Morganfield, the entire length of Main street in the business section and one block of the residence section is being torn up to be repaved with brick. The stone pavement which is now there, will be removed and used on country roads.

None but home-made materials will be used in the new "citadel" which the Louisville branch of the Salvation Army will build at Chestnut street between Second and Third streets, at a cost of $25,000. This decision was reached in view of the fact that the money for the building was raised by popular subscription in Louisville. Plans provide for a fireproof building, which will measure 50x90 feet, with three stories and basement.

Owensboro, Ky., will vote at a coming election on the proposition as to whether or not the city will build two large brick sewers, which, it is proposed, are to begin at the southeast and the southwest ends of the city and extend to the river. Jeup and Moore, Indianapolis, G. W.

SAY I SAW IT IN BRICK AND CLAY RECORD

Knight, of Chattanooga, and Frank W. Wilcox, consulting engineer of St. Louis, as well as others, have been looking at the plans and making estimates as to the amount of money the city will have to spend to complete the work.

MAINE

Four hundred thousand brick have just been burned at the Read-Nichols brick yard on Broad street, Bath, Me. This probably will be the last burn of the year. The plant has been in charge of John Dumas of Lewiston, and is being repaired, the storehouses re-roofed and arrangements are being made for an early reopening next spring.

The only brick yard in the vicinity of Boothbay, Me., is the Wilder Dodge yard at Newcastle, where Mr. Dodge has ten kilns with a capacity of 15,000 brick each. A few years ago there were as many as twenty kilns in Boothbay, Edgecomb, Newcastle, Damariscotta and Bristol, some of them making as much as 600,000 brick a year. The falling off is attributed by local men to the shifting of business centers to points having better transportation facilities, rather than to a lessening in the demand for brick.

MICHIGAN

It has been decided by the Detroit Brick Manufacturers' and Dealers' Association to make the brick rest room recently built on the Michigan State Fair grounds a permanent structure.

Charles A. Bowen, secretary of the Builders and Traders Exchange, Detroit, which has contracted for an entire floor in the new Penobscot addition, is now signing leases in the new quarters, having already secured several brick companies who will make their headquarters with the Exchange.

The Michigan Face Brick Company, Grand Rapids, Mich., reports business as being good, a number of large contracts having been handled since the establishment of the business there in 1914. The company's office has been arranged very attractively with the displays of the various kinds of brick in stock. H. N. Barr is the local manager.

Although the brick business in Detroit during the summer months was not all that it might have been, and not as good as in other years, the demand has shown improvement during the past six weeks. As a matter of fact, Detroit brick manufacturers right now are as busy as they ever have been. There was an unusual amount of building under way during September, this activity being carried into the present month.

John S. Haggerty, a Detroit brickmaker, sold 156,000 brick during the month of September, although his plant only made 96,000. This was due to the fact that extensive repairs were under way at the No. 2 yard, only one machine being in operation. While this was being done, the plant was practically closed for three weeks. Both plants, however, are now running to capacity.

MINNESOTA

The Duluth (Minn.) Clay Products Company, a newly organized company of which D. S. Crosby of Tower, Minn., is president, is now engaged in overhauling its equipment and making all necessary arrangements to begin operations next spring. The new company has taken over the brick plant formerly known as the North American plant. There is a large quantity of high grade clay on the property, and it is predicted that, under the

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

Broderick & Bascom Rope Co.

Manufacturers of

Aerial Wire Rope Tramways
Yellow Strand Wire Rope
Wire Rope of Every Description

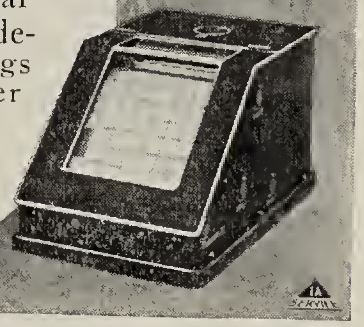
805-809 N. Main St. **St. Louis, Mo.**

HERAEUS LE CHATELIER PYROMETER

"The Ultimate Pyrometer"

For the accurate control of Kiln Temperatures it has no equal—the burners are enabled to devote more time to other things and therefore produce better ware.

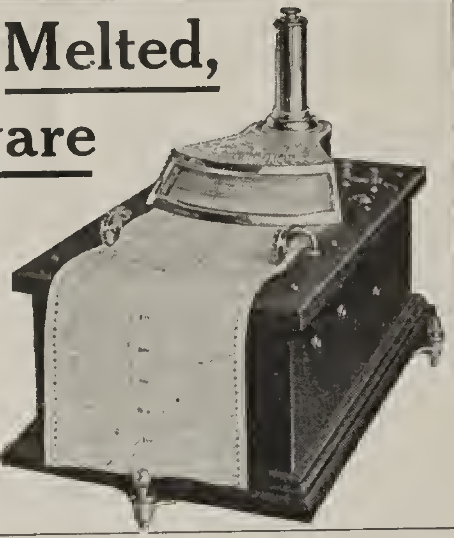
Get posted by asking more about it from
CHARLES ENGELHARD
30 Church Street
New York



How to Analyze Clay

A practical work for practical people. A Text Book for Clay Analysis, by Holden M. Ashby, Prof. of Organic Chemistry, Harvard Medical College, and Instructor Chicago Night School of Chemistry. An Aid to Beginners and full instructions for making clay analysis. 64 pages, with illustrations. Postpaid to any address in the world, $1.00.

Brick and Clay Record
445 Plymouth Court, Chicago, Ill.



One Kiln of Melted, burned-up ware

The loss on just one will more than pay for a Price Pyrometer installations—and after it is in you are forever insured against melted or underburned ware.

The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio

The Cincinnati Frog & Switch Company
Manufacturers of
Track Equipment for
Steam and Electric Railroads
Mines and Mills
Cincinnati, O.

Any Kind of Track Equipment, Standard or Special. Shipped the Day You Want It

Catalog C Pictures It All—Copy Sent on Request

Send for This Booklet

Contains lots of good information for the man who wants to reduce his power and light cost, as well as the gas engine operator who is interested in getting the most efficient results from his equipment.

CONTENTS

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Facts and Figures.
Bruce-Macbeth Engineering Service.
Producer Gas Plants.
How thousands of wasted horse power can be saved.
Meriam Steam Process.
Gas Engine Data.
(A section for the operating engineer.)

The Bruce-Macbeth Engine Co
2134 Center St. N. W.
CLEVELAND

Davenport Locomotive Works,
Davenport, Iowa

new management, the company will be successful in the manufacture of first quality clay products.

MISSISSIPPI

The first large order for export ever received by a Mississippi brick manufacturer was placed on October 10 with the Laurel Brick and Tile Company, Laurel, Miss., by representatives of a large British Honduras firm.

MISSOURI

The Hydraulic-Press Brick Company, Kansas City, reports that its sales have been better this year than last and that the record for the year will probably show an increase of fully fifty per cent over 1914.

The Murch Brothers' Construction Company, St. Louis, has been granted the contract for the Orpheum Theater, a $500,000 building at Ninth and St. Charles streets. The exterior of the building will be of polychrome glazed terra-cotta.

The Waverly (Mo.) Brick and Coal Company, which is now known as the Waverly Coal Company, is said to have eliminated the word "brick" from its name only temporarily, and may ultimately develop shale deposits which it owns at Waverly, Mo. The company originally planned to work its coal and shale deposits together, establishing a brick plant, but this project has been abandoned, at least for the present.

G. A. Heman has the following contracts for brick paving in St. Louis: On Marcus avenue from Margaretta to Kingshighway, $29,707; from Florrisant to Kingshighway, $21,027; on Lilburn from Euclid to Kingshighway, $7,650; on Chariton from Broadway to Nebraska, $7,614. The Hanick Quarry and Construction Company has these contracts: On Duncan from Vandeventer to Sarah, $13,480; on Arlington from St. Louis to Natural Bridge Road, $15,493.

MONTANA

In a rattler test of the paving brick manufactured by the Lewistown (Mont.) Brick and Tile Company, conducted recently by City Engineer Birkland, it was found that this company's product would be satisfactory for use in the pavement of the city's alleys, a matter which is now under consideration.

NEW JERSEY

The plant and property of the Standard Brick Company, Mountain View, N. J., was recently sold at auction, William A. Fairlie of Newark, being the highest bidder, securing the assets for $26,000.

The Mercer Clay Products Company recently filed incorporation papers with the Secretary of State of New Jersey. The new concern will do a general mining and manufacturing business, and particularly purposes to mine and prepare clay for the market. The capital stock of the new company is $100,000, the incorporators being: Charles H. Rue, of Trenton; William D. Hamilton, of Trenton; Paul C. Boving, of Philadelphia, and Louis G. Bachert, of New London, Conn.

NEW MEXICO

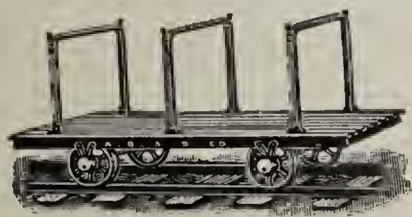
Building operations in Santa Fe, N. M., continue in good volume, and the coming spring promises much in the erection of new homes. A. S. Brookes will build a bungalow on Buena Vista Heights of brick and hollow tile, while many others will follow in the building of new homes of substantial and attractive design.

Say I saw it in Brick and Clay Record

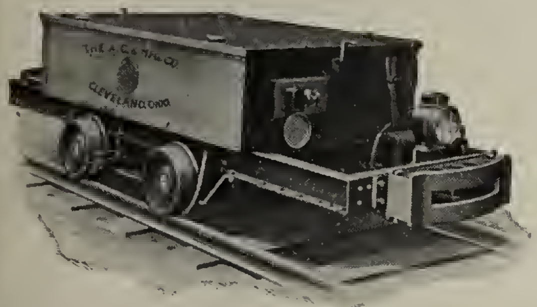
REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor

ATLAS
High Efficiency
Cars and
Electric Locomotives



No. 126 Double Deck Dryer Car



will meet your requirements. Let us send you catalogue and quote prices.

Storage Battery Locomotive for general use.

THE ATLAS CAR & MFG. CO.
Dept.
1287 Marquette Road, Cleveland, Ohio

Your Ware Is As Good As You Make It!

To make a merchantable class of ware it devolves upon you to perfect each single phase of the manufacture—from the selection of the clays to the sorting of the finished product.

The correct measuring and mixing of two or more raw clays is of tremendous importance.

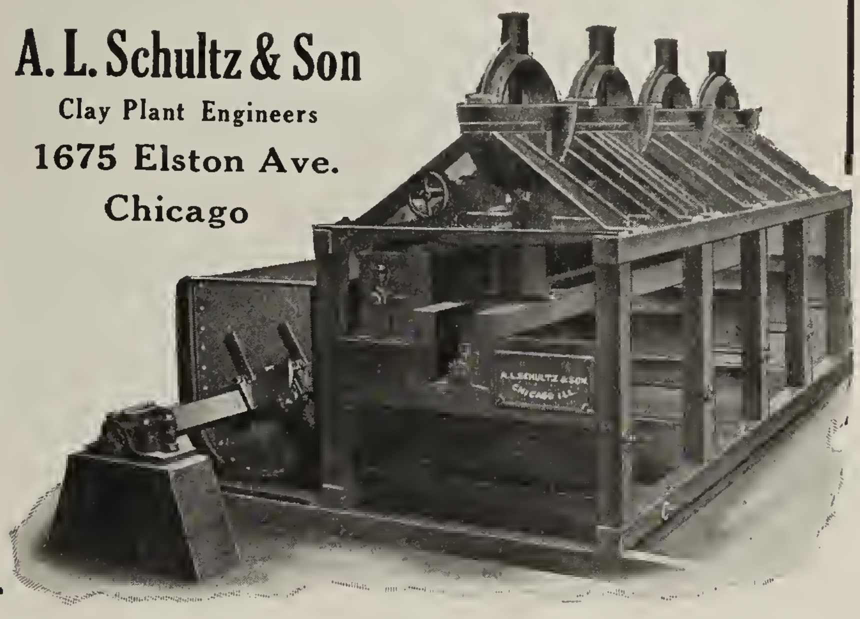
Financial success or financial failure depends upon the ability of your men or machines to standardize the batch.

To depend on your men to measure, to guess, to mix with shovel—or slide gate and chute is to have the batch run wild.

A dependable machine is your only alternative, and that machine is the Schultz proportioner—it measures, mixes and tempers. Set it and leave it. It does its work well.

Get details from

A. L. Schultz & Son
Clay Plant Engineers
1675 Elston Ave.
Chicago



POSTERETTES

200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral—and that moral means better business for the men who make paving-brick.

How about using some of them—now?

Printed in THREE colors

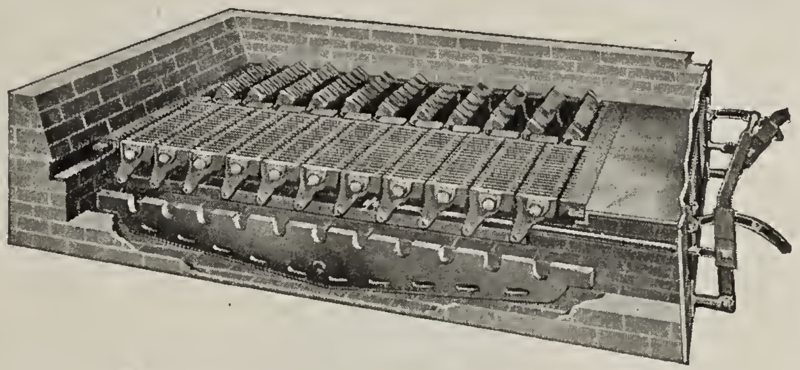
Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO

THE CANTON GRATE



Shaking and Dumping

The Canton is the grate to keep your fires clean and free burning, with the least time and labor, and with the fire doors shut. Absolutely no loss of fuel while shaking. It is easily installed. Bars may be replaced while furnace is in operation.

Convenience, Economy, Durability

are three important features, and these combined with simplicity of parts, ease of installation and operation, must convince engineers of the unusual merit of Canton Grates.

Our catalog fully illustrates and describes them. Write for it today.

The Canton Grate Company
1706 Woodland Ave., N. W. CANTON, OHIO

Marion
REVOLVING SHOVELS

IF it costs you more to run a crew of hand-diggers all day than to run a Marion only *part* of the day—volume of clay handled being the same—it surely would be

Best Economy to Dig "The Marion Way"

as many a brick manufacturer has done with great profit to himself. The facts are all ready in our Booklet 951. Better send for yours today; free—no obligation.

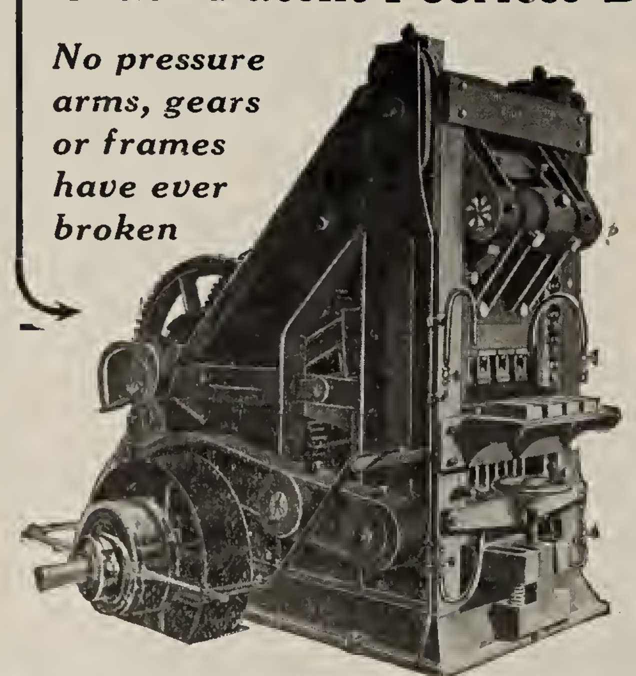
THE MARION STEAM SHOVEL COMPANY
Established 1884
Station A, MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
70
Manufacturers of Excavating Machinery of Every Description

34000 DRY PRESS BRICK

—in one day—on one four mold machine, is the regular record on this

Grath Patent Peerless Brick Press

No pressure arms, gears or frames have ever broken



The press was designed to combine speed with strength and simplicity. It has few working parts, it is regulated while in motion, it turns out perfect brick at high speed and it is almost wear proof.

Our catalogue illustrates a complete line of brick and roofing tile machinery—we will gladly send you a copy.

ILLINOIS SUPPLY AND CONSTRUCTION CO.
CENTURY BUILDING ST. LOUIS, MO.

Paving Brick Association Elects C. C. Blair President for 1916

(*Continued from Page 585*)

on the grounds of bias. On the other hand, a broad policy on the general subject of highway propaganda gains us a hearing for our special pleas on the subject of material.

"Recently a subscription rate of fifty cents a year was fixed for 'Dependable Highways' in the expectation that many members would become responsible for a certain number of subscriptions in their territory. Increasing circulation under this arrangement is not a liability as it might become under other conditions. Do not look on 'Dependable Highways' as a mere office bulletin but as your publication, eager to reach and influence your field of patronage, solicitous to obtain your ideas and expecting your co-operation and support.

"Having finished a successful year, won the good words of scores of diverse critics and having financed itself almost entirely out of its advertising receipts, we have no hesitation in appealing rather insistently for more liberal support of this little publication.

"We must influence the road building official and the road building public by all means. Incidentally we must influence the non-member to join with us. Enthusiasm and co-operation are the indispensible agencies for lifting brick to the prestige it deserves. Our effort should be a united effort and we cannot help thinking that the sponstaneous enthusiasm of every member is the best magnet to attract increased membership.

"This is only a brief sketch of our activities and aims. The field is unlimited. Our friends the enemy—the concrete men—have seen fit to keep scores of men in the field. Four of the leading cement firms of the country met at Atlantic City the other day and voted themselves to give a total of $240,000 for the work of their association during the coming year. We mention this with no aim to discourage you but to emphasize the bigness of the task with which we are confronted and the boundless possibilities of growth which the future holds."

TREASURY SHOWS GOOD BALANCE

The treasurer's report showed receipts which, together with balance carried over from last year, amounted to more than thirty thousand dollars and expenditures against this amount of something less than nineteen thousand dollars, the balance on hand being close to twelve thousand dollars.

Toward the close of the first day's session, an election was held for the purpose of selecting a Board of Directors which will serve for the year 1916. This selection was made by ballot, each paving-brick concern holding membership being entitled to one vote; the election resulted in the choice of J. W. Robb, of Clinton, Ind.; Eben Rodgers, of Alton, Ill.; R. A. Doan, of Nelsonville, Ohio; W. N. Alderman, of Athens, Ohio; C. C. Barr, of Streator, Ill.; C. C. Blair, of Youngstown, Ohio; C. J. Deckman, of Cleveland, Ohio; C. P. Mayer, of Bridgeville, Pa.; J. G. Barbour, of Canton, Ohio; F. L. Manning, of Portsmouth, Ohio; R. C. Burton, of Zanesville, Ohio; W. P. Blair, of Cleveland, Ohio; G. O. French, of Canton, Ohio; J. L. Murphy, of Nelsonville, Ohio; F. W. Lucke, of Chicago, Ill.; G. H. Francis, of Greensburg, Pa.; T. J. Armstrong, of Springfield, Ill.; J. B. Wilcox, of Alliance, Ohio; D. R. Potter, of Clarksburg, W. Va.; John H. Simpson, of Day-

(*Continued on Page 618*)

"Bolt It to the Bin"

The Columbus Feeder

for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio

Yellow Strand Powersteel Truckline

It can easily move two loaded freight cars.

It coils up flat—takes up practically no room.

Its rated breaking strain is about 12 TONS.

Powersteel Truckline

is about 18 ft. long and ½ in. dia. Y. S. wire rope, equipped with strong drop forged hooks and heavy manila or wire slings—as desired.

Buy yours now for $6.50—test it—see it deliver the goods—then you will want one for each of your trucks.

Broderick & Bascom Rope Co.
703 N. Second St.
Saint Louis, Missouri

When you come to New York on Business

You need something more than food and lodging.

You need a *Home and an Office Combined.*

It should be a *home* with all your usual comforts so that you may be in the proper mental frame to look after your business.

It should be an *office* because a neglected telephone message or delayed letter or a forgotten call may mean a serious business loss to you.

Then again your New York Hotel must be in the *right place,* otherwise you are losing time and energy in lost motion.

Of course the *prices* must be right because if you are a shrewd business man you like to get the maximum in value for your dollar, so we charge the usual rates for very unusual accommodations, and that's why we say come to

The Hotel Martinique

"The House of Taylor"

Broadway, 32nd and 33rd Streets
New York

We have been catering to business men for nearly seventy years and know your needs. Right near the Pennsylvania Depot. We deliver your baggage to and from *free.*

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. East Liverpool, O. St. Louis, Mo.
Kansas City, Mo. Philadelphia, Pa. Boston, Mass.
New Orleans, La.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

THWING HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Acme Brick Company, Marietta, Ohio.
Adel Clay Products Co., Adel, Iowa.
Armstrong Cork Company, Beaver Falls, Pa.
Baker Clay Company, Grand Ledge, Mich.
Buckeye Firebrick & Clay Co., Scioto Furnace, Ohio.
Cork Brown Lime Company, Oshkosh, Wis.
Darlington Clay Products Co., Darlington, Pa.
Dressler-American Company, New Castle, Pa.
Eureka Brick Company, Richmond, Va.
Ludowici-Celadon Co., New Lexington, Ohio.
Milton Brick Company, Milton, Pa.
Minneapolis Clay Brick Co., Minneapolis, Minn.
Murphysboro Paving Brick Co., Murphysboro, Ill.
Heinz Roofing & Tile Co., Denver, Colo.
Puritan Brick Company, Hamden, Ohio.
Rookwood Pottery, Cincinnati, Ohio.
St. Lawrence Brick Co., La Prairie, Quebec.
Sebring China Pottery Co., Sebring, Ohio.
Straitsville Impervious Brick Co., New Straitsville, O.
Tuttle Brick Company, Middletown, Conn.
Upper Sandusky Tile Works, Upper Sandusky, O.
O. Zimbal Brick Company, Sheboygan, Wis.

Twenty-two New Users of THWING PYROMETERS
during the past twelve months is not a bad showing while business was so dull.

Others are on the way

THWING INSTRUMENT COMPANY
437 North Fifth Street PHILADELPHIA

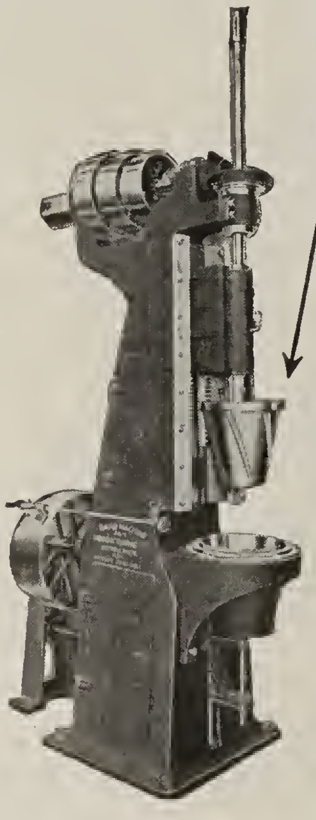
Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the

Baird

Flower Pot Machine



Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

(*Continued from Page* 616)

ton, Ohio; W. R. Barnhart, Jr., of Wooster, Ohio; J. R. Zmunt, of Cleveland, Ohio; C. W. Turner, of Sciotoville, Ohio; G. E. Carlyle, of Portsmouth, Ohio, and F. L. Moores, of Cincinnati, Ohio.

C. C. BLAIR ELECTED PRESIDENT

The first order of business for the morning session of the second day (Tuesday, Oct. 12) was the election of officers, which resulted in the selection of Claude C. Blair of the Bessemer Limestone Company of Youngstown, Ohio, as President; J. W. Robb, of Clinton, Ind., as Vice-President; Will P. Blair, of Cleveland, Ohio, Secretary; H. H. Macdonald, of Cleveland, Ohio, Assistant Secretary, and C. C. Barr, of Streator, Ill., as Treasurer. All of these were re-elected to office with the exception of Claude C. Blair, who succeeded Charles J. Deckman, of Cleveland, the latter just completing his fourth term as president and declining further honors.

John W. Sibley, of Birmingham, Ala., Secretary-Treasurer of the Southern Paving Brick Manufacturers' Association, spoke at the morning session and painted a rosy future for the southern territory in which his association was active. He pointed to the fact that within the past few days, cotton had gone to 13½ cents, and said that, if this price could be maintained for another sixty days, southern farmers would be out of debt. He stated that the blast furnaces of Birmingham were all fired—some of them for the first time in ten years—and that the South was fast recovering from the financial depression which struck it so badly at the outbreak of the European war. He declared that since the Dixie Highway proposition had assumed a definite shape, the South would do its part, not only in the paving of this historic road, but in the county and township cross roads feeding into it. He said that the outlook for paving in the entire South, both municipal and rural, was very bright and that his association was doing a great educational work in spreading the doctrine of economy through brick paving. "Satisfactory pavements," he said, "are our best municipal asset and since our best asset should be worth at least par, we feel that we should have the one-hundred per cent roadway—built properly and paved with brick."

DAYTON NEWSPAPERS FRIENDLY

Hardly had the morning session come to a close when copies of the Dayton "News" were being eagerly read by the delegates to the paving brick convention. The reason for this intense interest was quickly seen when it was found that the "News" printed an editorial so strongly favoring paving brick that even the manufacturers of that excellent material gasped. Coming as it did at a time when more than half of the engineers engaged in the design and construction of highway work in the country were meeting in convention and that convention meeting in Dayton, this editorial had tremendous value.

It read as follows:

> The paving-brick men are with us—husky fellows who are engaged in making the material that is lifting us out of the mud. They are here from all sections of the country—men who preside over big plants and little ones—and they are attending to business while having a good time.
>
> It has been a struggle, and there are still many contests on, but this is to be a brick-paved nation. It is being demonstrated every day that other paving is a makeshift, or that it at least answers only a temporary

(*Continued on Page* 620)

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Down in the Pit

Where the big shovel is loading cars—half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive light, speedy, powerful— to yank the loads out—the empties in.

Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.–CHICAGO, ILL.

The Cement for Paving Brick Grout

Lehigh is High in Strength, Uniform in Color and Fineness. You Don't Have to Guess with Lehigh.

Specify and Use Lehigh in all Brickwork. Remember the Mortar Joint is an Important Factor in the Wall.

Use Lehigh and Cease to Worry.

It Assures Satisfaction Under All Conditions.

LEHIGH CEMENT

Cement Grout for Permanence

Obviously—the first step in comparing the old and our new burning system—is to decide whether it is best to use—

GAS PIPES or COAL CARTS

to deliver fuel to your kilns.

The Pipe System doesn't require—a horse—a cart—a driver—a stable—it doesn't drop fuel in the mud and ashes—nor is any fuel left at the kilns at the completion of a burn to be lost in the dirt, or laboriously re-handled.

The Pipe System is the modern way—It is

The Underwood Producer Gas Burning System

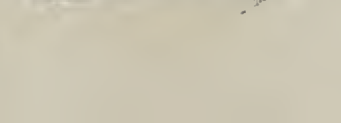
(Patented)

—regulated by a turn of the wrist to produce immediately any desired condition or heat.

No shovels—no clinkers—no waste—no grates—no varying heats—

It's marvelous—we know it. Do you? Ask

THE MANUFACTURERS EQUIPMENT CO. who have
"Everything for the Clayworker"
DAYTON, OHIO, U. S. A.



Here Are Two Seemingly Unrelated Facts

First—You would undoubtedly use the Hook System if you knew more about it.

Second—You are wondering today how you can increase your profits—next year.

——yet—the Hook System is analogous to profits.

——for—isn't it true that a twenty-five percent decrease in your coal bills means satisfactory dividends—and wouldn't a twenty percent decrease in your burning time, combined with better ware—greater uniformity in color and toughness—from top to bottom—mean satisfactory dividends——?

Which is just what the Hook System does.

Would you know more?

The Hook Patent Kiln Co.
VIGO, OHIO
Canadian Office: 250 Dufferin St., Toronto, Ont.

(*Continued from Page* 618)

purpose. Brick is the road; and the sooner every community recognizes it, and makes arrangements to vitrify its roads, the better it will be—and the cheaper.

Nature has nothing in her storehouses that is superior to a properly made brick. In her furnaces she has produced nothing that so well serves the purposes of man. In the deposits she has left for us to grovel in, she has placed no greater value than in the clays. She has wrought many wonders, but nothing so wonderful as her natural product which we call silica, and out of which we have fashioned so many articles of use and comfort.

These paving-brick men are assuming, however, a tremendous responsibility. The prosperity of the community, in fact, is in their hands. They can help us to secure the proper roads, or they can retard us in the game. For they are to have much to do with helping us to secure the best of roads at the most economical of prices. It is unfortunately true that every time a manufacturer sends out a poor grade of goods it retards the adoption of such goods to a certain extent.

That is one of the advantages of such conventions as this of the paving-brick men. It enables them to get closer together, to co-operate more fully with the legitimate and to help weed out the illegitimate manufacturer. So we are all interested in the meeting being held here at this time. It brings us a little nearer to the era when one can travel on a brick road from one section of the nation to every other section.

An unfortunate incident prevented the attendance of Richard H. Lee, President of the Cleveland (Ohio) Automobile Club, who was to have been toastmaster at the banquet which was served Tuesday evening—a position which was splendidly filled, however, by R. R. Nevin, a Dayton attorney and a recent Congressman.

TUESDAY EVENING'S BANQUET

Between five and six hundred engineers and others interested in paving, sat down to the banquet given by the National Paving Brick Manufacturers' Association to the American Society of Municipal Improvements. The two principal speakers—and there were but two—were the President of the Ohio State University, W. O. Thompson, who spoke to the subject "Efficiency and Economy of Public Expenditures," and the Hon. James M. Cox, Ex-Governor of Ohio, whose subject was "Benefits Arising from Co-operative Efforts". Both speeches were warmly received and the speakers were many times interrupted by spontaneous outbursts of applause. The American Society of Municipal Improvements seemed to have grown accustomed to being told that paving-brick was the only safe and economical material with which to surface city streets and cover highways—grown so accustomed that they enjoyed the sensation of being told these things again and again. Of course, in some instances, the saying did not take exactly the form mentioned—it merely stated that the best roads were the most economical—everyone knows that the "best" road is brick paved.

WEDNESDAY'S SIGHTSEEING

Aside from the few minutes consumed in sitting (or was it kneeling and standing?) for a group picture—this taken on the steps of Memorial Hall—the delegates to the N. P. B. M. A. convention had little to do Wednesday morning. An opportunity was afforded them, therefore,

(*Continued on Page* 622)

SAY "I SAW IT IN BRICK AND CLAY RECORD"

CHICAGO BRICK MACHY CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Wood Moulds
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

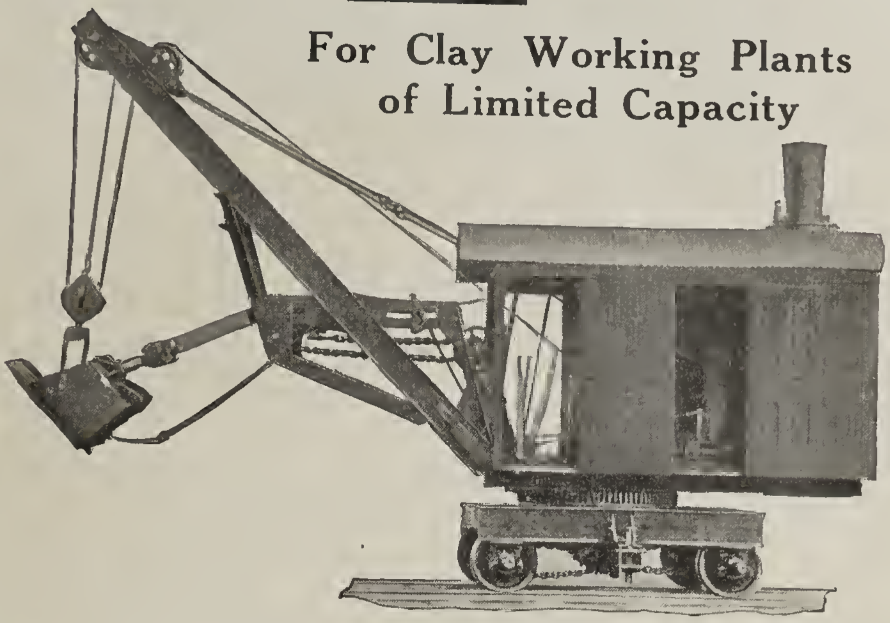
Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

THE THEW SHOVELS

Type AO—A Smaller Thew Shovel

For Clay Working Plants
of Limited Capacity



MORE than 400 Thew Shovels are in use in clayworking plants, a fact which conclusively proves the adaptability of these shovels to this industry.

Until recently the Type O Shovel, weighing 18 tons, was the smallest and most generally used machine and the range of sizes adapted for clayworking varied from that up to Type 4, weighing 55 tons.

The success invariably experienced by clayworkers with Thew Shovels proved their design and operating features to be ideal, and emphasized the need of a somewhat smaller shovel for the plant with more limited capacity.

The Type AO Thew Steam Shovel was designed to meet this demand, and it affords the owners of these plants an economical advantage, equal to that enjoyed by their larger competitors.

The Type AO Steam Shovel is small, light, simple in operation, readily portable, and ample in every way for the requirements of the modern clayworking industry.

Weight, 15 tons; dipper ⅝ cu. yds. capacity; hoisting engines, 5x6 inches; swinging and crowding engines, 4x5 inches; boiler built to Massachusetts specifications for pressure up to 150 pounds.

Owners of clay plants who heretofore considered their plants not large enough to justify a steam shovel will be interested by obtaining additional information about this Type AO Thew.

SIGN and MAIL or USE FOR MEMORANDUM

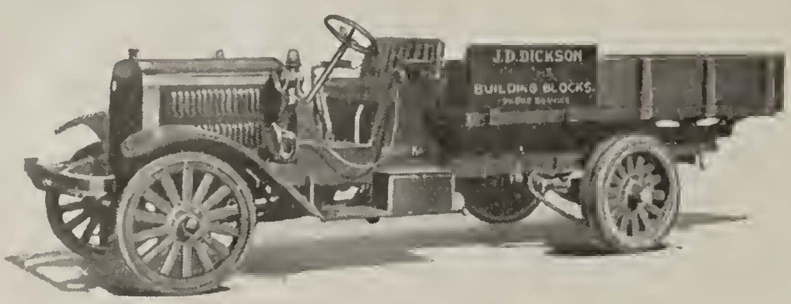
The Thew
Automatic
Shovel Co., Lorain, O.

Send us at once literature about the Thew Type AO Shovel advertised in "Brick and Clay Record."

Name ....

Address ....

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO



Best Adapted to Brick and Allied Industries

FOR the haulage of brick, paving blocks, sewer pipe, and heavy material of all kinds, 3½ to 4-ton and 6-ton KisselKar Trucks are peculiarly adapted.

They are uncommonly staunch and powerful, constructed to meet extraordinary emergencies.

It is a truck with reserve factors of strength and stability and a convincing record of reliable service. It's the truck for you. There are seven sizes in all—1000 pounds and up.

KisselKar Trucks
Seven Sizes

Owners of KisselKar Trucks are invariably truck enthusiasts. We would like to have you know their experiences.

We would like to have them tell you of the great dependability and economy of their trucks.

We would like to have them tell you of the vastly improved service over horses, of the new trade won through increased delivery area and the general advertising value of their vehicles.

Ask us who are using KisselKar Trucks in your line—then write to them. Also say you would like a copy of our new portfolio with 500 illustrations—it will interest you.

Kissel Motor Car Company
568 Kissel Avenue, Hartford, Wis.

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville. Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

(*Continued from Page* 620)

for sight seeing trips, most of which were made in small groups. One particular point of interest was Dayton's Municipal Exhibit, which occupied two floors in Memorial Hall and had for its purpose the education of Dayton's voters in matters of public expenditure. Using great charts in which the expenditures of former years were compared with the present and in which comparative costs in the various departments of city activity were compared with costs *per capita* in cities of like population, Dayton's economical administration of public funds was graphically shown. Nor were these exhibits "dead"—demonstrators were on hand to explain and above every booth and against almost every post, the sign "Ask Questions" was seen. School children thronged the exhibit after school hours and many of those who stopped to think, saw a deep significance in the fact that these boys and girls of today would be the voters of ten or a dozen years hence and have in their keeping the expenditure of Dayton's wealth.

THE WRIGHT BROTHERS' AVIATION SCHOOL

Braving a threatening sky, a long line of automobiles carrying what is estimated to be more than two hundred delegates and guests, left the Miami Hotel about one thirty Wednesday afternoon. About sixty miles of improved highways were covered, the greater part of which were paved with brick—much of the pavement having been laid more than ten years. The condition of these brick paved roads is a tribute to the honesty of Dayton's contractors and the efficiency of Dayton's engineers, for the roads all seem to be wearing evenly and there are but few signs of repairs—indicating that the original highways are still intact. The route led to and through the United States Government Reservation, where is maintained a Soldiers' Home, and thence past many of Dayton's manufacturing establishments, including the factory of the Wright Brothers, which was transferred the same day to eastern capitalists for a consideration that is said to be one and a half million dollars. The objective point was the Hills and Dales Club, where luncheon was served. From this point the cars hit a twenty-five mile clip to Wright Brothers aviation field where scholars in the noble art of flying are being turned out at the rate (it is said) of one each day.

The present "class" is between twenty-five and thirty, the greater part of which is made up of Canadians; to look at these boys and wonder how soon they will be sailing above the trenches in northern France or elsewhere as Lord Kitchener may direct, gives an added thrill to that which comes to even the most hardened of aviation spectators.

ENGINEERS STUDY BRICK PAVING

The American Society of Municipal Improvements had scheduled five days of discussion on various municipal problems and in deference to the program of the National Paving Brick Manufacturers' Association, assigned Wednesday evening for the discussion of various types of brick road construction as well as the report of the committee on street pavement, of which Frederick A. Reimer, County Engineer of Newark, N. J., was chairman. In addition to his report, Will P. Blair, Secretary of brick road construction. Will P. Blair, Secretary delivered an address on "Brick Paving" which was followed by a paper delivered by A. D. Duck, City Engineer of Greenville, Texas, on vertical fibre brick pavements, and later by an address delivered by Wm. C. Perkins, Chief Engineer, Inspection Department of the Dunn Wire-Cut-Lug Brick Company, of Conneaut, Ohio.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

Evans Clay Mfg. Co., Uhrichsville, O. 3
Keller Brick Co., The, Cuyahoga Falls, O. 8

BRICK (COMMON)

Alliance Brick Co., Alliance, O. 8
Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Keller Brick Co., The, Cuyahoga Falls, O. 8
Metropolitan Paving Brick Co., Canton, O. 5

BRICK (FACE)

Alliance Brick Co., Alliance, O. 8
Alliance Clay Pro. Co., Alliance, O. 5
American Enameled Brick & Tile Co., New York, N. Y. 8
Belden Brick Co., Canton, Ohio 8
Bradford Pressed Brick Co., Bradford, Pa. 6
Hocking Valley Pro. Co., Columbus, O. 8
Hydraulic Press Brick Co., St. Louis, Mo. 6
Ironclay Brick Co., Columbus, Ohio 8
Keller Brick Co., The, Cuyahoga Falls, O. 8
Kimbell Brick Co., S. S., Chicago, Ill. 6
Metropolitan Paving Brick Co., Canton, Ohio 5

BRICK (FIRE)

Alsey Brick & Tile Co., Alsey, Ill. 3
Chicago Retort & Fire Brick Co., Chicago, Ill. 4
Davis Fire Brick Co., Oak Hill, O. 3
Dover Fire Brick Co., Cleveland, O. 3
Evans Clay Mfg. Co., Uhrichsville, O. 3
Maurer & Son, H., New York City 3
Mexico Brick & Fire Clay Co., Mexico, Mo. 3
Jos. Soisson Fire Brick Co., Bolivar, Pa. 3
Southern Fire Brick & Clay Co., Chicago 3
St. Louis Vit. & Fire Brick Co., St. Louis, Mo. 4

BRICK OR BLOCK (PAVING)

Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Barr Clay Co., Streator, Ill. 4
Bessemer Limestone Co., Youngstown, O. 5
Big Four Clay Co., Canton, O. 6
Carlyle Paving Brick Co., Portsmouth, O. 6
Danville Brick Co., Danville, Ill. 5
Deckman-Duty Brick Co., Cleveland, O. 5
Harris Brick Co., Cincinnati, O. 6
Hocking Valley Brick Co., Columbus, O. 5
Metropolitan Paving Brick Co., Canton, O. 5
Murphysboro Paving Brick Co., Murphysboro, Ill. 4
Purington Paving Brick Co., Galesburg, Ill. 6
Shawmut Paving Brick Co., Shawmut, Pa. 6
Sterling Brick Co., Olean, N. Y. 4
Terre Haute Vit. Brick Co., Terre Haute, Ind. 4
United Brick Co., Conneaut, O. 5

DEALERS

American Clay & Cement Corp., Rochester, N. Y. 8
Kimbell Brick Co., S. S., Chicago, Ill. 6
Globe Brick Co., East Liverpool, O. 8

FIRE PROOFING

Metropolitan Paving Brick Co., Canton, O. 5

RAGGLE BLOCKS

Kimbell Brick Co., S. S., Chicago, Ill. 6

REFRACTORIES

Davis Fire Brick Co., Oak Hill, O. 3
Dover Fire Brick Co., Cleveland, O. 3
Evans Clay Mfg. Co., Uhrichsville, O. 3
St. Louis Vit. & Fire Brick Co., St. Louis, Mo. 4

SEWER PIPE AND BRICK

Evans Clay Mfg. Co., Uhrichsville, O. 3

TILE (DRAIN)

Evans Clay Mfg. Co., Uhrichsville, O. 3

TILE (FLOOR)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 8

TILE (PROMENADE)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 8

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax, Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook. E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter, S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Fisklock—Fiske & Co., Inc., Boston and New York.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Grid—Fiske & Co., Inc., Boston and New York.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company. St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nibatco—North Iowa Brick & Tile Co., Mason City, Iowa.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., Wellsville, O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill..
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Twin Tex—Sheldon Brick & Building Supply Co., Urbana-Champaign, Ill.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
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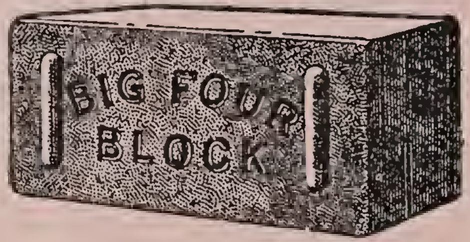

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Marion Steam Shovel Co.
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Thew Auto. Shovel Co.

Steel Ties.
Cincinnati Frog & Switch Co.

Sprocket Wheels.
Link-Belt Co.

Supplies.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Eastern Machinery Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Switches and Frogs.
Cincinnati Frog & Switch Co.
Buckeye Rolling Mill Co.
Atlas Car & Mfg. Co.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Taylor Instrument Companies.
Thwing Instrument Co.

Tie Plates.
Cincinnati Frog & Switch Co.

Tile Machinery.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Manufacturers Equipment Co.

Time Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Trade Names Registered
Peck, Hubert E.

Transfer Cars.
Atlas Car & Mfg. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.

Trucks (Auto).
Kissel Motor Car Co.

Trucklines.
Broderick & Bascom Rope Co.

Turntables.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co., The.

Unloading Devices for Pans.
Clearfield Machine Shops.

Wagons.
Manufacturers Equipment Co.

Watchman's Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Waterproofing.
Johns-Manville Co., H. W.

Wet Pans.
Chambers Bros. Co.
Jackson & Church Co.

Wheelbarrows.
(See Barrows and Trucks.)

Wheels and Axles.
Winding Drums.
Ceramic Supply & Cons. Co
Chambers Bros. Co.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Weller Mfg. Co.

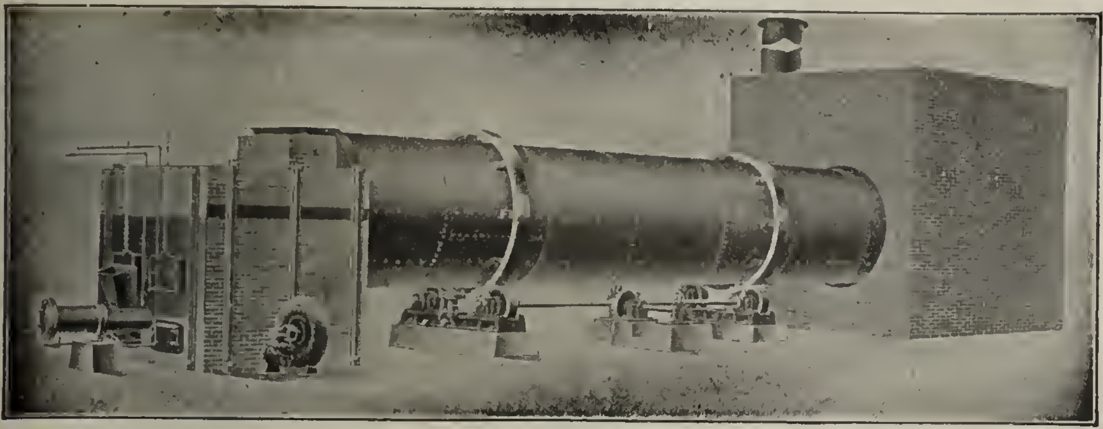
Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

Look Out for Winter!

DON'T let freezing temperature catch you again with the same troublesome old heating apparatus in your drier! Even if you're not ready for a complete new drying plant, let us figure with you *now* on installing

The Standard Heating System

in your present drier. This system is *self-draining*. It doesn't need special attention, no matter how cold the weather gets. All expansion pipes are *horizontal*. There is no drop at either end of the system to pocket the condensation and stir up trouble. Write for an estimate. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio

OSGOOD

"18" ¾-yd. Traction Revolving Shovel with independent steam steering engine, also combination hand steering operated from either side of shovel.

The Osgood Company
Marion, Ohio, U. S. A.
Eastern Office: 51 State Street, Albany, N Y.

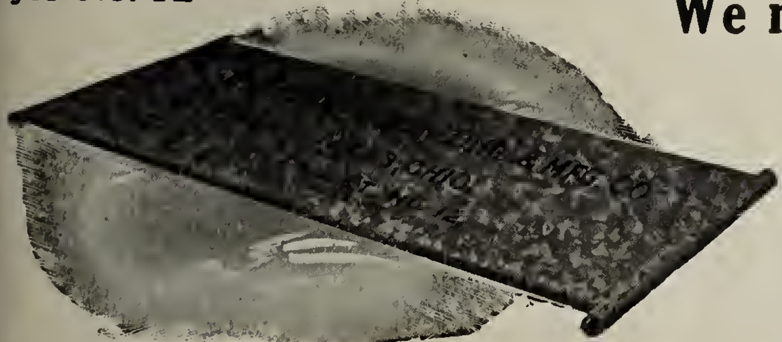
Chicago Agency:
The M-C-B Co., McCormick
Bldg. Phone Har. 6365.

New York Agency:
M. E. Davis,
1682 50 Church St.

Philadelphia Agency:
J. M. Reed Co., Inc.,
516 Commercial Trust Bldg.

STEAM SHOVELS DIPPER DREDGES

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

Reduced Operating Costs

Reduced cost is what every brick manufacturer wants now, when the demand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

Westinghouse Electric & Manufacturing Co.

Sales Offices in all
Large American Cities

East Pittsburgh
Pennsylvania

Put Half Your Wheeling Gang to Work on a Gravity Brick Conveyer

You won't need the other half.
Their salaries can be added to your profit.
You can save the cost of wheelbarrows also.

Catalog on Request

It's very simple–

Just put the brick on the steel, ball-bearing rollers—two, three or four at a time and let them run quickly and gently down into the car. Just a slight slant will cause the brick to run over the easy-running rollers for long or short distances, or turn corners, as desired. Made up in connecting sections for easy moving.

MAIN OFFICE AND FACTORY
ELLWOOD CITY,
PENN.

SPEED
The Mathews Way
MATHEWS GRAVITY CARRIER COMPANY
The Saving Way
ECONOMY

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

More Belting Service for Your Money

THE GANDY BELT—the Original Stitched Cotton Duck Belt—meets with greater favor each year. Every year shows larger sales and 1915 will prove no exception.

There's a reason. The Gandy belt is giving satisfactory service in all industries—its users have found it the most economical belting to employ.

This economy is due in a measure to certain wear-proofing features found only in Gandy—the extra heavy cotton duck used in its manufacture, its special water and oil resisting qualities.

Also its low cost, less than 1/3 the price of leather belting, much less than rubber belting, while *It Does The Work*. Shall we mail you samples and quote prices?

The Gandy Belting Company, 732 W. Pratt Street, Baltimore, Md.

New York Office, 36 Warren Street

GANDY BELTING

Three Hundred Cubic Yards of Tough Clay in One Day

That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

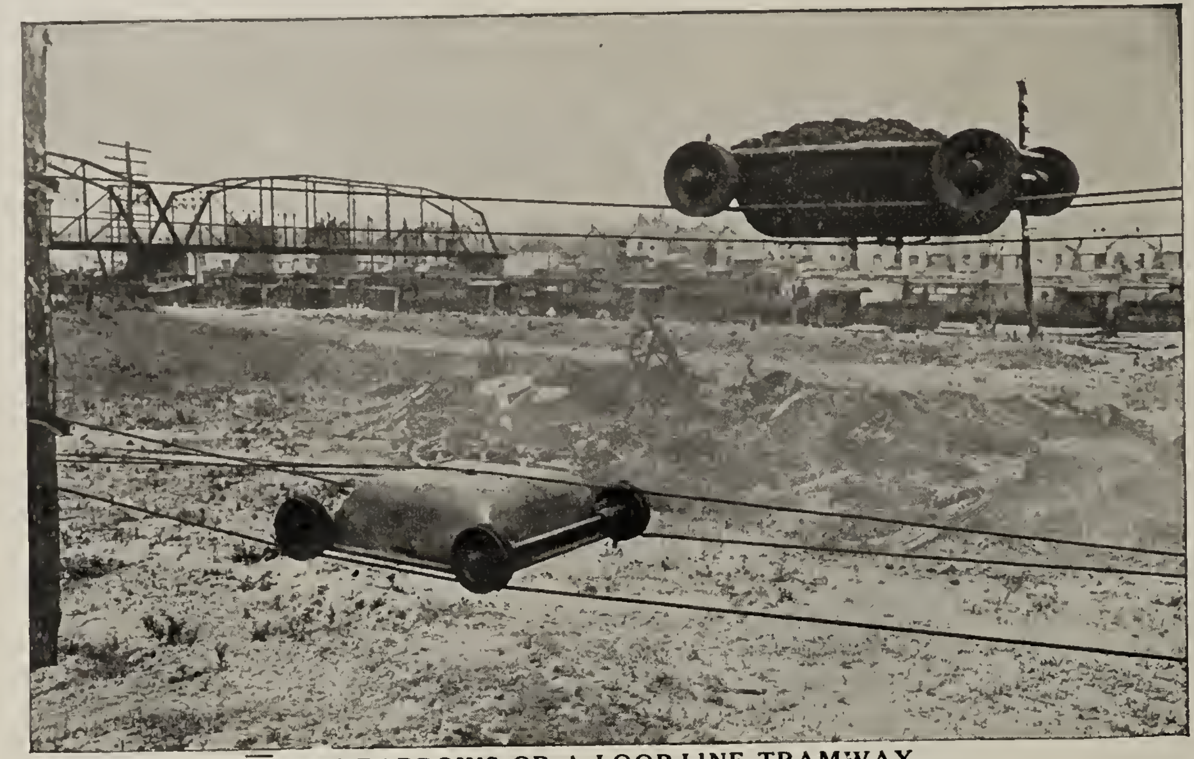
is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will **dig and deliver**—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

SCHOFIELD-BURKETT CONSTRUCTION CO., Office and Works: MACON, GA.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

CONSIDER!



THE BARROWS OR A LOOP-LINE TRAMWAY

You have to haul clay, ore, sand or any other material five hundred feet to five miles.

This material is in or can be brought to a small bin with discharge chute attended by one man.

A continuous stream of barrows pass the bin each receiving its full load, the operator simply opening and closing a gate in the chute.

The barrows pass on down the line through the air, at the end they automatically turn over, dumping the load and pass back to the starting point ready for another load.

Not a Human Being Touches the Barrows.

They move along regularly and automatically. This is a Lawson Loop-Line Tramway.

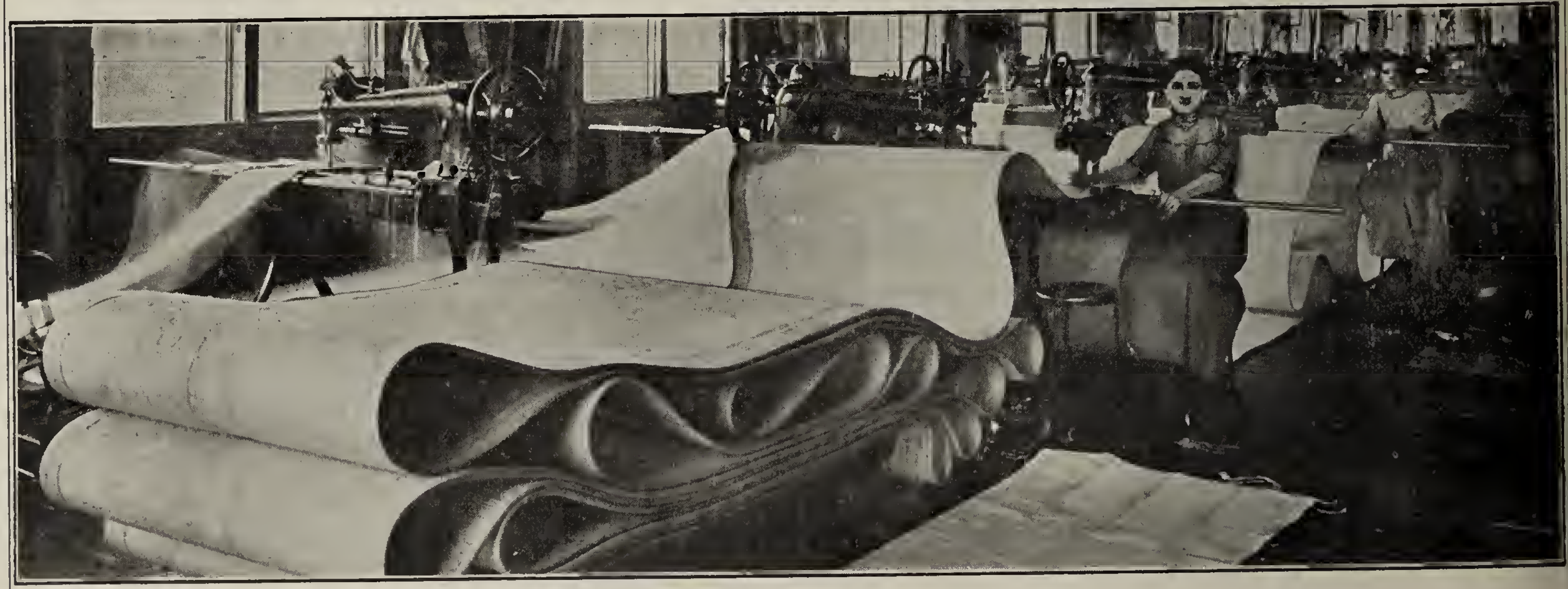
CAN YOU BEAT IT?

Write for full information

AMBURSEN COMPANY

61 Broadway
NEW YORK CITY

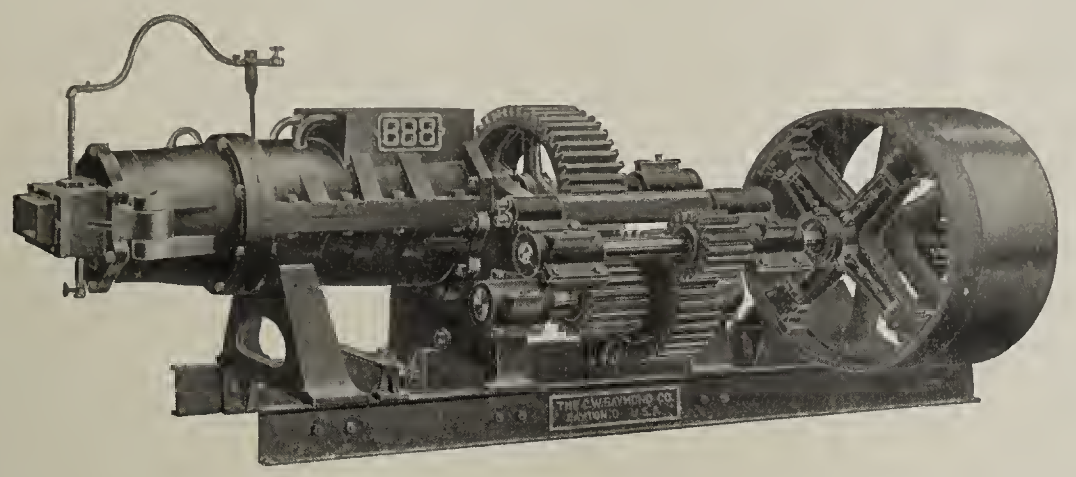
Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making Sawyer Belts, and why you should use them.

THE SAWYER BELTING COMPANY, Cleveland, O.

SAY "I SAW IT IN BRICK AND CLAY RECORD"



WHEN you use cast tooth gears on a machine like this, one year's power cost is more than twice the price of the machine.

When you use cut tooth gears, the saving in a year's power cost is equal to the price of a new machine.

You save a little in first cost by buying cast gears, but they cost you for additional power, almost exactly **twenty times** what you save.

Verify this; ask your own mechanical engineer.

Our Bulletin 19 proves it. Send for your copy.

NUTTALL—PITTSBURGH

Here is a Kiln Built with Common Sense

The Schaffer Semi-Continuous Kiln is revolutionary only in that it follows Nature's Laws. The average kiln builder gets confused in the maze of dampers, tunnels, forced draft systems, etc., and before he gets through he has upset **Natural** Laws and seeks to make fuel and heat do **impossible** things.

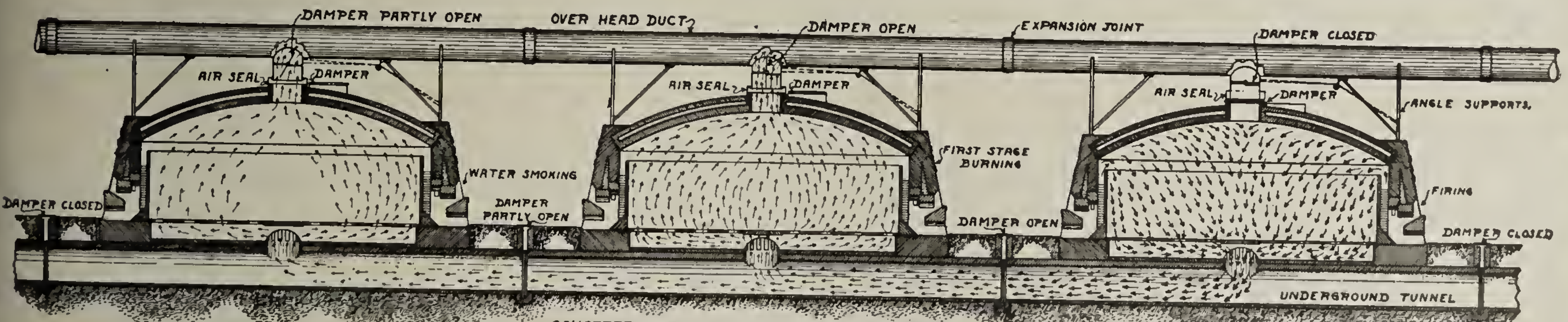
The Schaffer Semi-Continuous Kiln utilizes well-known principles

There is no magic about it—no hocus pocus—now-you-see-it-now-you-don't—stunts. Just plain, common sense, mixed with practical experience and engineering ability.

We have a pamphlet that tells all about this sensible kiln—SEND FOR IT

The narrow confines of this ad will not permit us to tell you just HOW and WHY the Schaffer Semi-Continuous Kiln is built, but we have a pamphlet that tells the story briefly, but completely. We would be pleased to send you a copy.

THE SCHAFFER ENGINEERING & EQUIPMENT CO., Inc, Tiffin, Ohio



SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

Patent Allowed

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Classified Advertisements

WANTED—HELP.

WANTED AT ONCE—Men to learn bricklaying, for positions paying $90.00 to $175.00 a month, or with a view of conducting their own business at $3,000 to $6,000 a year profit. Men thoroughly trained to become experts in a few months' time; expert instructors; tools instead of books used; training given under ACTUAL WORKING CONDITIONS; day or night courses; tuition very low; terms easy. Plumbing and electricity, motion picture operating and drafting also taught. Big demand now for men in these profitable trades. Don't delay. Write for full particulars TODAY. B. W. Cooke, Director, Coyne National Trade Schools, 31 E. Illinois St., Chicago, Ill. 9-4

WANTED—A man to take charge of inside work on paving brick plant. Must have experience with machinery and be able to keep same in proper condition together with getting out the output of the factory. None other than experienced men need apply. Must be industrious and sober. Give references and state salary. Steady work the year around. Apply: Moberly Paving Brick Co., Moberly, Mo. 10-2-1

WANTED—Expert salesman. Territory and opportunity the best. State references and salary desired. Address: 10BC, care of "Brick and Clay Record." 10-2-3

WANTED—Superintendent brick works, one hundred thousand common brick daily. State salary with references. Address: 10BA, care of "Brick and Clay Record." 10-2-2P

WANTED—First-class sewer-pipe kiln setter. Will contract for setting and drawing to right party. Address: 10BE, care of "Brick and Clay Record." 10-2-2P

WANTED—Several pressed brick and rough-face brick sorters. Steady work, good pay. Address: 10BB, care of "Brick and Clay Record." 10-2-2

WANTED—Men for setting and drawing kilns. Ajax Brick Co., Detroit, Mich. 10-2-1

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—POSITIONS.

SITUATION WANTED—By a man who thoroughly understands the clay business from pit to office, including the selling, and also thoroughly understands the manufacture of high-grade face brick, fire brick, common brick, sewer pipe and fireproofing, also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of dryer troubles and kiln troubles. A first-class handler of labor to get results. Wants to get with a concern where ability will be recognized. Address: 8-R, care of "Brick and Clay Record." 8-TF.

WANTED—Situation as superintendent or manager of clay plant. Thoroughly understand designing, erecting and operating up-to-date plants, manufacturing all classes of brick and also partition tile. A No. 1 references. Address: 10-B, care of "Brick and Clay Record." 10-2

POSITION WANTED—Practical superintendent of brick and tile work of wide experience wants position with good firm. Good reference. Might buy some stock. Correspondence confidential. Address: 10BD, care of "Brick and Clay Record." 10-2-1P

POSITION WANTED—As superintendent of brick or tile plant by practical, experienced man of many successful years in the manufacturing of common and face brick, pavers and drain tile. Have used all kinds of clays and up-and-down draft kilns. Results guaranteed. Best of references. Am also A-1 burner. Address 9-BA, care of "Brick and Clay Record. 9-2-3P

WANTED—EQUIPMENT

WANTED—Two second-hand clay harvesters. Must be in good condition and cheap. Cedar Rapids Brick Co., Cedar Rapids, Iowa. 10-2

WANTED—About 25 twelve-shelf dryer cars. Paterson make preferred. Address: 10-D, care of "Brick and Clay Record." 10-1

WANTED

WANTED—Location for tile plant somewhere west and north of Chicago, Illinois. Must be good clay and shale and close to railroad. Address: 10-BH, care of "Brick and Clay Record."

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAY LANDS.

MINERAL LANDS—We have limestone lime suitable for fluxing, cement and soil correction. Also sandstone which is 99 per cent silica, suitable for molding or for fire-brick. Near railroad, within 100 miles of Chicago. Address: Thomas Crigler, Sec'y, Attica Commercial Club, Attica, Ind. 10-2-1

FOR SALE—CLAYWORKING PLANTS.

FOR SALE, OR MIGHT LEASE.

Great opportunity for a practical brick man. Face and Fire-Clay Brick Plant on Vineyard Sound, Marthas Vineyard, Mass., comprising 40 acres buff-burning fire clay averaging 40 ft. deep. Product goes to market in vessels at $2.00 to $3.00 per M. Now in running order with following equipment: 10-ton locomotive, 7 flat cars, 1 crusher, 1 set smooth rolls, 1 Fate Imperial machine, 1 Raymond semi-automatic cutter, 6-track dryer with 11-foot ¾ housed Sturtevant fan, 1 84 disc fan, 100 dryer cars, 1 30-foot and 1 21-foot down-draft kilns, 150 h.p. boiler, 1 150 and 1 35-h.p. engine, 1 40-k.w. generator, 1 35 and 1 15-h.p. motor, ½ mile track to wharf, abundant water for plant. S. D. Whittemore, 101 Tremont St., Boston, Mass. 10-2

FOR SALE OR RENT—Desirable face-brick plant, well equipped, abundance of raw materials, located in Eastern Pennsylvania. Owners have increased their buying and selling business to such extent have found it advisable to discontinue the manufacture of brick. Practical brickmaker with small capital can handle this proposition. Must be responsible party. Address: 10-A, care of "Brick and Clay Record."

FOR SALE—Tile plant, Indiana, seventeen acres, with 10,800 feet floor space; one new 24-foot kiln; machinery in good condition and making tile, with a good market. A bargain for some one with small capital. Address 9-BC, care of "Brick and Clay Record." 9-2-1P

FOR SALE—Complete brick plant. Heart of orange belt. Inexhaustible clay deposit. Good demand for product. 140 acre farm, dwellings, tenants, etc. Farm worth price. Address: 10-L, care of "Brick and Clay Record." 10-2

BRICKYARD FOR SALE—The old and well-established Davidheiser brickyard at Stowe, Pa., not more than 36 miles from Philadelphia, including land, machinery and equipment. The only plant in the U. S. equipped with automatic strike, bumper and deliverance to dumper, is offered for sale. Good reasons for selling. Address: F. B. Davidheiser, Stowe, Pa. 10-2-1P

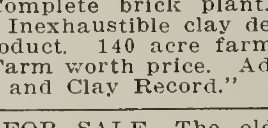
FOR SALE—SECOND-HAND MACHINERY.

FOR SALE AT YOUR OWN PRICE.

1 Frost engine, 85 h-p.
1 Frost boiler, 120 h-p.
1 Freese pugmill.
1 Freese disintegrator.
1 Freese drum hoist, 300 ft. cable, 1.5 ft. Buffalo fan.
3,000 ft. T rails, 2 dump cars.

24 steel bands for four 36 ft. down-draft kilns, also doors, grates, etc., in good shape, used but very little. Equipment all in good order. G. H. Wenner, Minden, Nebr. 10-3-P

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.



FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay disintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—One 10,000 capacity brick outfit, consisting of one pugmill, disintegrator, etc. Machinery used less than six months; in good condition. Also one boiler and engine. Columbiana Savings Bank, Columbiana, Ala. 9-4

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—One No. 2 Giant brick machine, one double shaft clay feeder pug mill, American make No. 247. Also one generator and motor. All in perfect order. No reasonable offer refused. Ohio Clay Product Co., Salineville, Ohio. 10-2-2

FOR SALE—Stevenson 12 ft. pug mill and 24x30 inch rolls in good condition. Also 60 h.p. boiler 12 ft. long, 54 3-inch tubes. Card & Prosser Coal Co., Lisbon, Ohio. 10-2-1

FOR SALE—One 18 B Bucyrus traction shovel, ¾ yd. dipper. New 1914; condition excellent. J. A. Donahue, 909 Great Northern Bldg., Chicago, Ill. 10-2-1

FOR SALE—200 tons good used 25 lb. rail. Will sell any quantity at $20.00 per ton. Also 65 lb. and 80 lb. rail. Topper Bros., Columbus, Ohio. 10-2-3

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

RAILS

all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.

PATENTS

Inventions Protected.
Trade Marks Registered.
Patents Investigated.
Established 1895.

HUBERT E. PECK.
635 F. St., Washington, D. C.

How J-M Heat Treatment Cuts Kiln Masonry Upkeep

THERE are two weak points in every piece of fire brick masonry, the spaces between brick courses and the faces of the bricks proper. Practically all fire brick troubles, from the finest fissure or spawl to actual disintegration, can be traced to the inherent defects of this nature.

J-M Heat Treatment provides against both of these by supplying two cements, No. 31 High Temperature Cement, to be used in between the brick, and No. 32 High Temperature Cement for the treatment of the brick faces proper.

No. 31 High Temperature Cement

is used as a mortar in setting up fire brick. It vitrifies at a low kiln temperature and while still maintaining this state of vitrifaction actually grows in strength up to 3187° Fahrenheit, which is its fusing point. It seals all the spaces between the brick and thus protects brick edges from excessive heating, which is so disastrous to their life.

No. 32 High Temperature Cement

is applied at the time of setting up as a water-mixed grout over the entire masonry surface. It vitrifies at a low temperature, producing a granular surface of uniform structure that will not chip, crack or spawl despite the severity of the temperature or its variation.

Write for complete data on this treatment. Any branch will quickly forward it.

JOHNS-MANVILLE SERVICE
COVERS THE CONTINENT

For Pottery Saggers

No. 32 High Temperature Cement is of particular merit for the coating of saggers. Its use prevents the inflow of damaging kiln gases which are so disastrous to china and stone ware during glaze firing. It has a further value in that it actually increases the life of the sagger by preventing fissures and spawling.

H. W. JOHNS-MANVILLE COMPANY

Atlanta
Baltimore
Boston
Buffalo
Chicago
Cincinnati
Cleveland
Columbus
Denver
Detroit
Galveston
Indianapolis
Kansas City
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Newark
New Orleans
New York
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Portland
St. Louis
Salt Lake City
San Francisco
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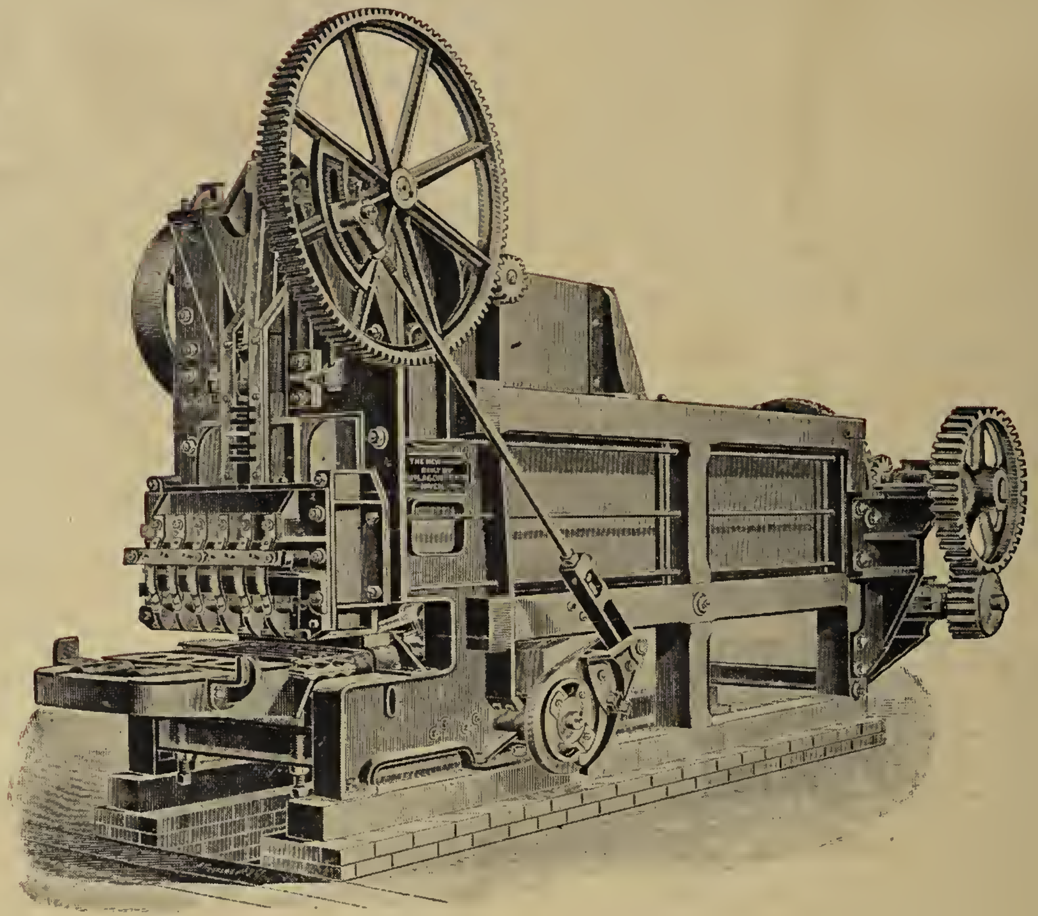
Toledo

SAY YOU SAW IT IN
BRICK AND CLAY RECORD



THE ONLY thing that gives value to any machine is its earning capacity.

That the earning capacity of brickmaking machinery depends upon strength and good construction quite as much as upon rated speed, is clearly evident. Many brickmakers have learned this in the expensive school of experience.

When a machine is idle, awaiting repairs, its earning capacity is stopped. The breakdown affects its average earnings for the entire year.

Continuous results determine earning value. It is on this principle that

New Haven Soft Mud Brick Machines

are built. That is what has made them the greatest profit winners for the brickmaker.

Write us, that we may send you literature on this and kindred subjects.

THE EASTERN MACHINERY COMPANY

NEW HAVEN, CONN.

Builders of the Strongest Soft-Clay Brick Machine in the World

BRICK and CLAY RECORD

UNIVERSITY OF ILLINOIS LIBRARY
NOV 9 1915

If You Believe in Your Own Product—Put It to the Front

The first big, competitive exposition of building materials of all kinds, where the prospective builders—tens of thousands of them—may judge for themselves which is the best, safest, most attractive and most economical house, will be held in Cleveland, Ohio, February 16 to 26, 1916.

The future building of all the Middlewestern Country will be influenced by the

First American Complete Building Show

If the makers of Clay Products, who believe brick and tile the ideal materials, do not back up their claims with a demonstration in this exposition, they should not complain if 1916 gives them no increased business in this vast, busy section. Cleveland alone will spend $30,000,000 for new buildings in 1915, and more than that next year.

A few choice locations are open, but you will have to hurry. More than 70 per cent of space was sold by voluntary application.

Write for floor plan and particulars at once

Complete Building Show

Leader-News Building **Cleveland**

Vol. XLVII, No. 9 Chicago November 2, 1915

It makes no difference

whether you want to screen your material, elevate, store or convey it or transmit power to various units

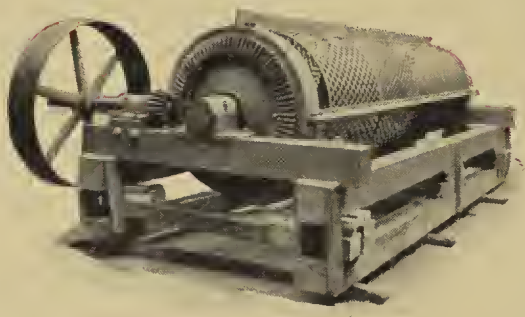
When you want any such equipment, there is just one place to send your orders and more Brick and Clay Workers are finding this out every day.

You may fool them once but when they keep sending repeat orders it proves that you are treating them right.

SPECIFY WELLER-MADE INSIST ON

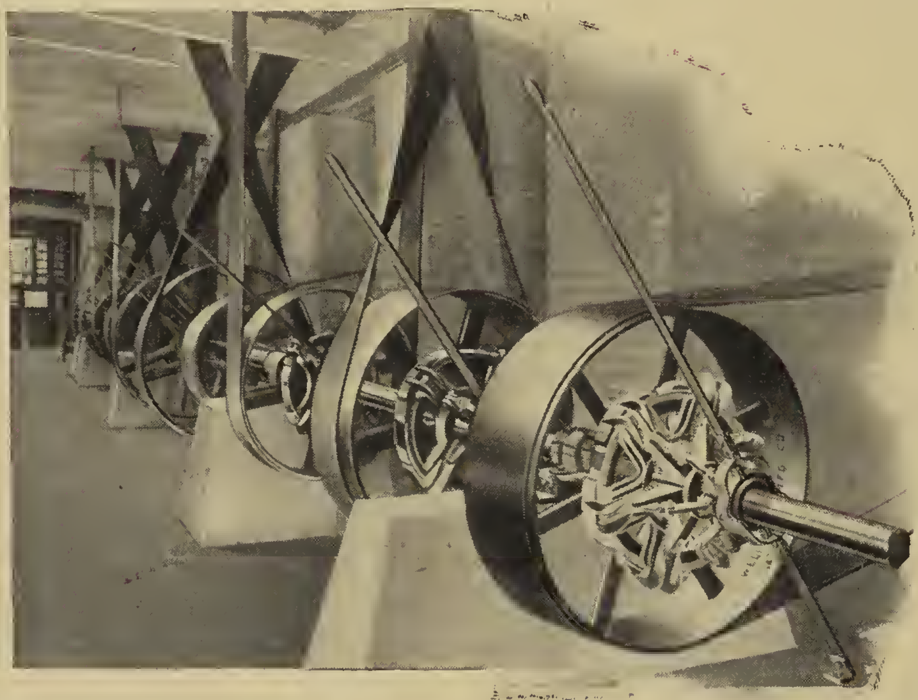
Screens

Open or Encased



Revolving, Shaking or Stationary.

Belt Conveyors—Storage System.



Line Shaft Equipment. Every pulley fitted with Friction Clutch.

Elevators. Any Material—Any Size.

Elevating, Conveying and Power Transmission

Weller Manufacturing Company, Chicago

NEW YORK
50 Church St.

BALTIMORE
Garrett Bldg.

AKRON
10 W. Buchtel Ave.

ST. LOUIS
710 Railway Exchange

DALLAS
711 Main St.

SAN FRANCISCO
316 Rialto Bldg.

SAY I SAW IT IN BRICK AND CLAY RECORD

TRAUTWEIN-IZE

YOUR PLANT AND MAKE IT GIVE YOU INCREASED EARNINGS

TRAUTWEIN DRYING APPARATUS is built to meet requirements, not a price. It is the most economical, durable and efficient of any equipment used.

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Alliance Clay Pro. Co. .... P- 5
Alsey Brick & Tile Co. .... P- 3
Ambursen Co. 705
American Blower Co. 649
American Clay Machy. 697
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American Process Co. 701
Atlas Car & Mfg. Co. 691

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Baldwin Loco. Works 689
Barr Clay Co. .... P- 4
Barrett Mfg. Co. 699
Bartlett & Snow Co. 702
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Bessemer Limestone Co. .... P- 5
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The Other Fellow's Business

Just because a competitor is selling his product at a lower price than you are compelled to ask for yours, it does not necessarily follow that he is losing money. It isn't very many years ago that automobile manufacturers generally said that Henry Ford would "go broke" because they were sure his prices were too low for his business to be maintained.

Of course price-cutting is a big evil and we'll probably always have it to combat, but more often than otherwise, investigation will show that one's competitor can afford to name a lower selling price because his manufacturing cost is correspondingly lower.

It behooves every one of us to keep on the alert for new methods and equipment that help us to make a better product at a reduced cost. Sometimes ideas change overnight and the concern that shows the best earnings is the one that studies carefully every issue of the leading trade publications so as to keep abreast of these progressive times.

This refers fully as much to the advertising as to the editorial columns, too. Make a practice of this and you can forget your competitor and his prices.

Standards of Practice for Business Papers

1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

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There are a number of detail plates showing construction which are of great value, as they give the best ideas of a number of our cleverest architectural designers.

The book is for sale through "Brick and Clay Record's" Book Department, at $2.00 postpaid.

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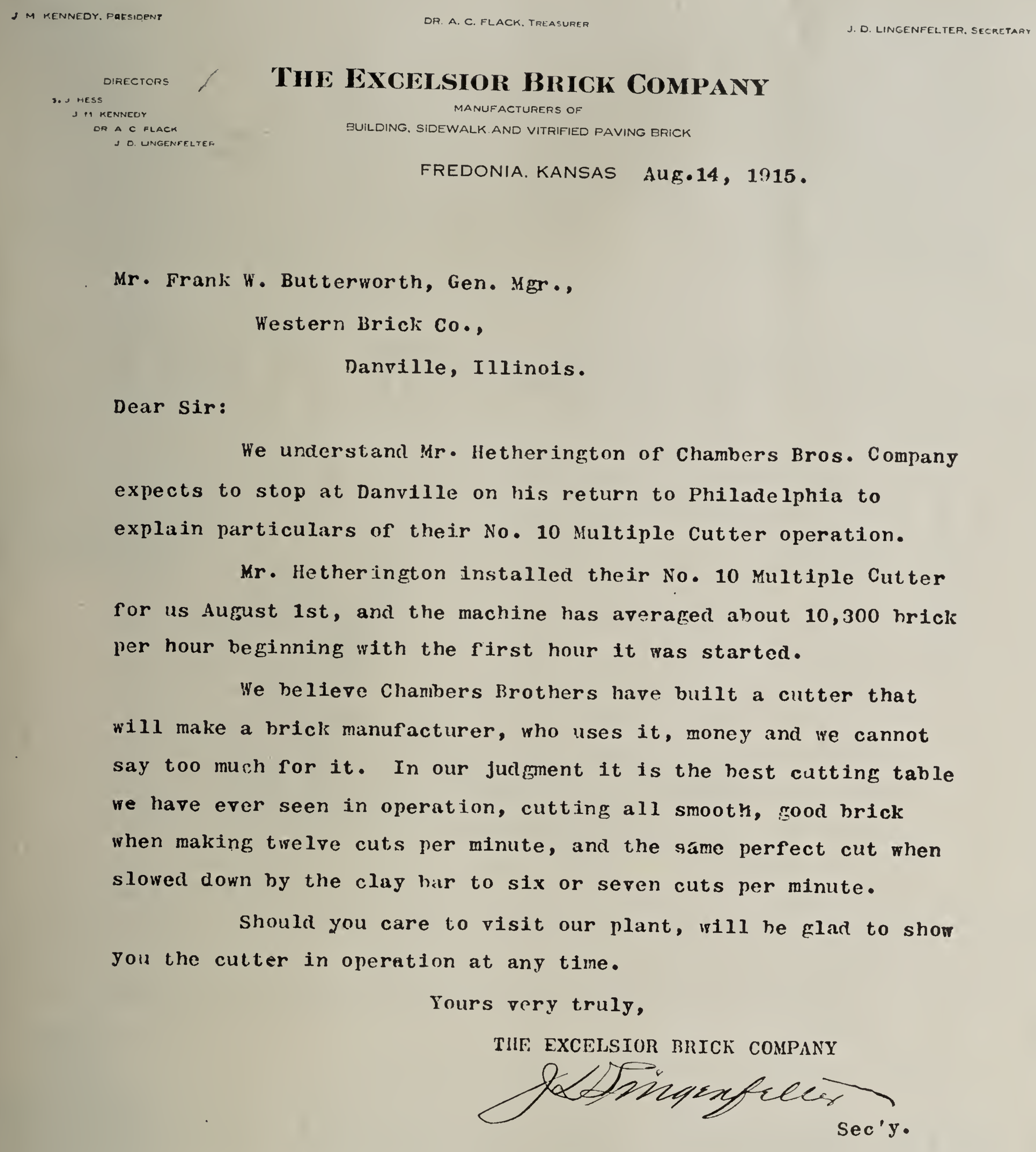

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Mr. Hetherington installed their No. 10 Multiple Cutter for us August 1st, and the machine has averaged about 10,300 brick per hour beginning with the first hour it was started.

We believe Chambers Brothers have built a cutter that will make a brick manufacturer, who uses it, money and we cannot say too much for it. In our judgment it is the best cutting table we have ever seen in operation, cutting all smooth, good brick when making twelve cuts per minute, and the same perfect cut when slowed down by the clay bar to six or seven cuts per minute.

Should you care to visit our plant, will be glad to show you the cutter in operation at any time.

Yours very truly,

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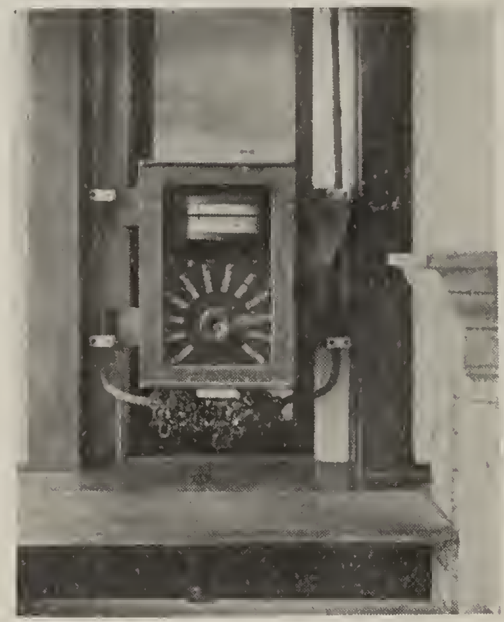

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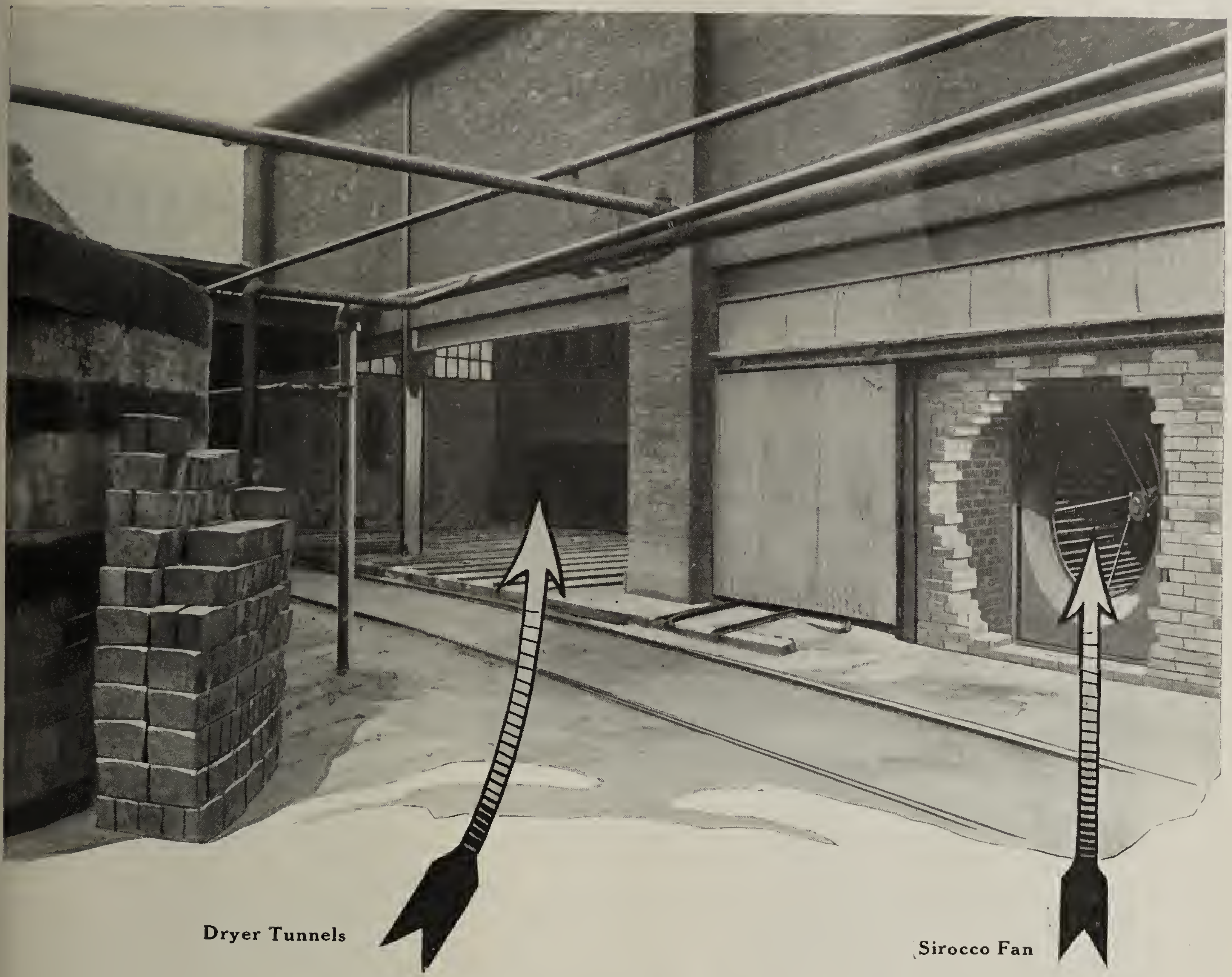

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Waste Heat Systems take a wasted element and turn it into a PRODUCTIVE ELEMENT

You might just as well mix up a batch of clay and only use half of it and throw the rest away as to burn fuel to generate heat for burning brick and not make use of the heat from the cooling kilns. The heat from the cooling kilns is just as good for drying as any other heat.

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Our Brick Engineering Department helped them in the selection of the proper arrangement of "Sirocco" System—we'll do the same for you. Write us about a "Sirocco" System for your plant.

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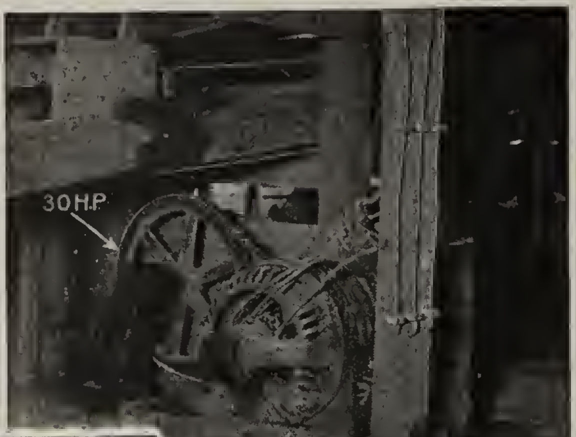
Floor Space is Never at a Premium in Clay Plants Where

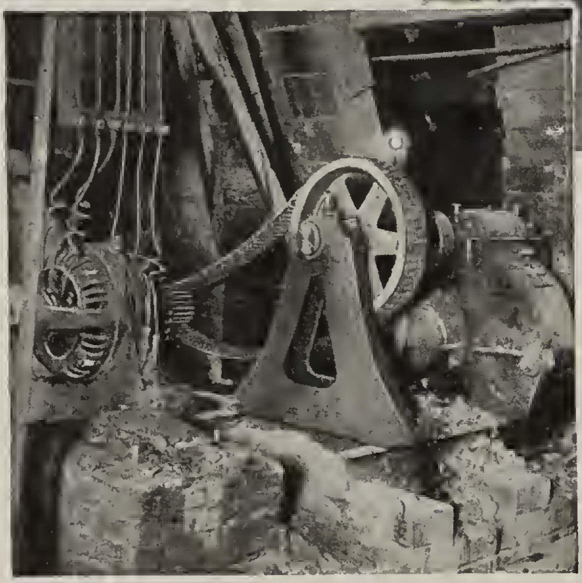
Link-Belt Silent Chains

are Used to Drive the Various Machines

See the compactness of this arrangement—a 30 H. P. motor driving a pug mill. ⟶

The chain is kept covered in actual operation and is free from dust.





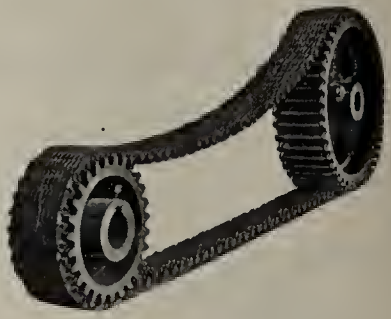
⟵Here's the most efficient way to drive an auger machine. The motor is 85 H. P. This shows the chain at rest—note its slackness—the only pull is the power pull—no strain on the motor.

Link-Belt Silent Chains are so flexible—due to the superior construction of the bushed joint—that a close couple is possible without any danger of the sharp shocks of the machinery being conveyed to the motor.

A leather belt requires a long couple to overcome these shocks, thus using much valuable floor space that should be put to better use.

Perhaps you have considered the adoption of electric power for your mill—maybe you hesitate to put in an exhaust fan to utilize the waste heat in your drier—yet you couldn't see how you could spare the room for the drive. Don't let this worry you any longer—we'll have our Engineering Department solve this problem for you without any obligation on your part. We've done it for scores of clay workers and we can do it for you.

Anyway—send for our book: "The Ideal Drive for Clay-Working Machinery." It contains figures, facts, and shows photos you should know about.



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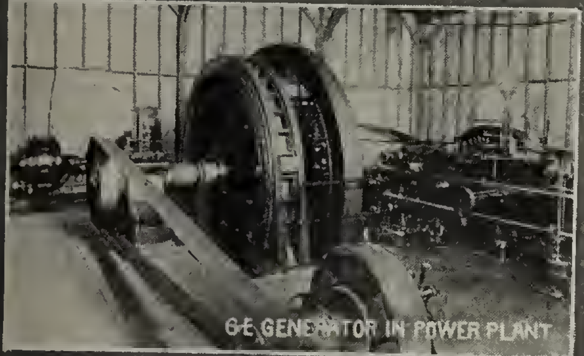
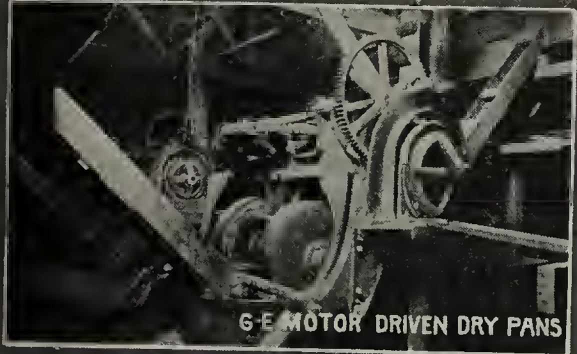


G-E GENERATOR IN POWER PLANT



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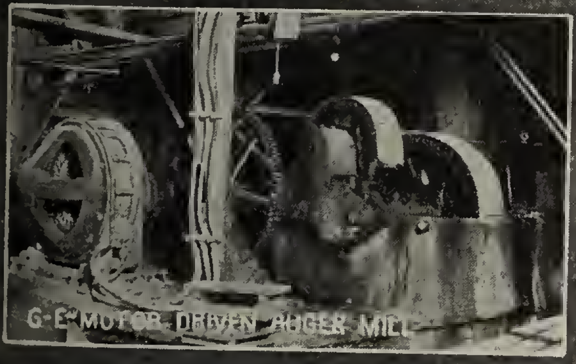

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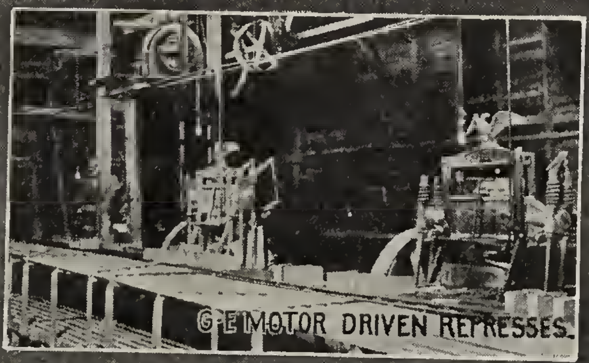

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5858

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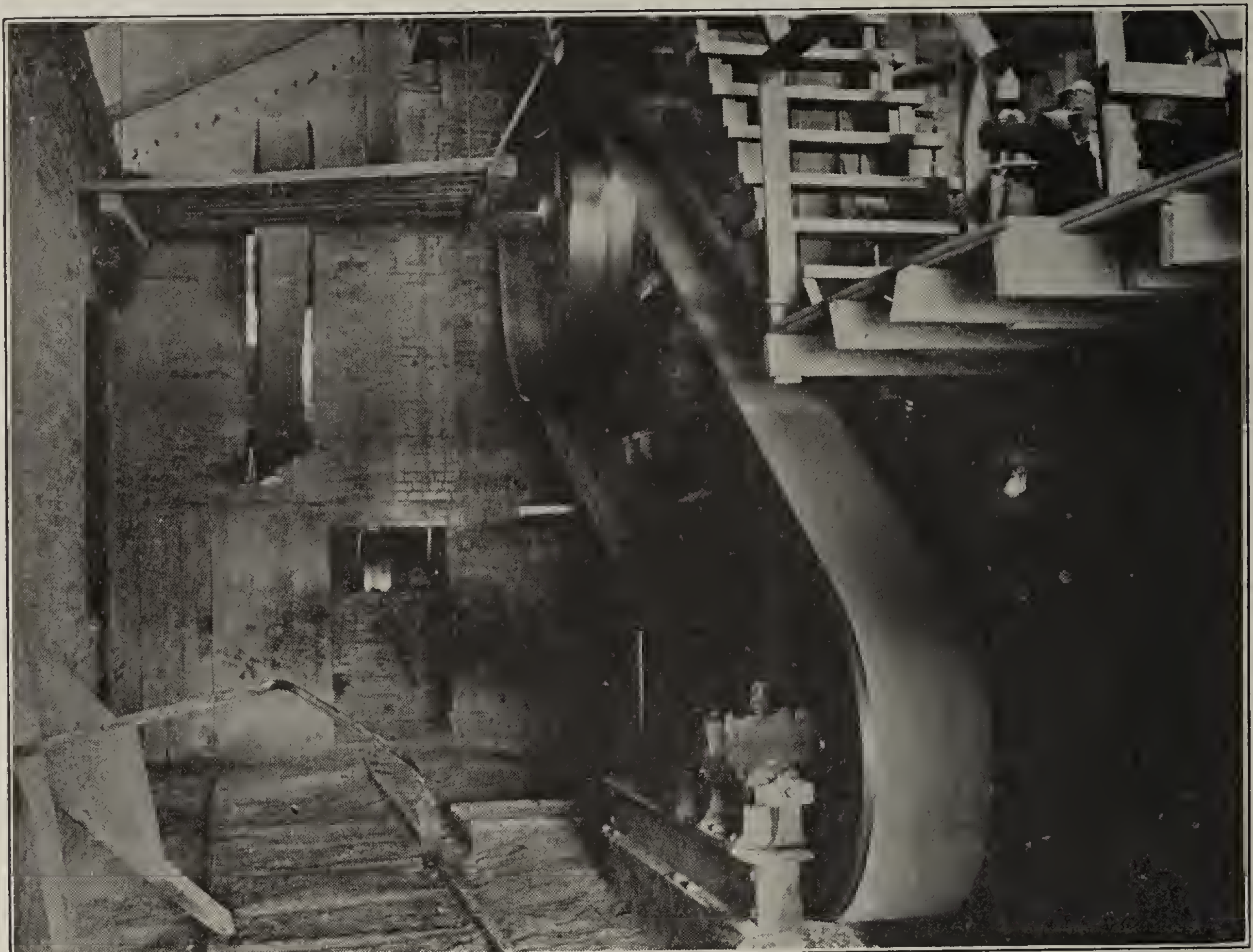
The Belt for the Brick and Clay Plants

ILLUSTRATION SHOWS:

52 feet of 12-inch "SCANDINAVIA" used on a brick machine in one of the largest brick plants in Ohio. "SCANDINAVIA" has been in operation 2½ years—the best service ever received from stitched canvas was 1 year.

Space does not allow us to enumerate many such instances.



Why "SCANDINAVIA" is better—

Has no plies—no stitches—no laps—better gripping power—drives more horsepower—has greater strength—is absolutely uniform—not affected by steam, water, oil or dust. Most economical, considering service

Note: In same plant above mentioned, "SCANDINAVIA" working on a dry pan drive has been in service 4 years—whereas rubber lasted but 1½ years.

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BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

Published on the First and Third Tuesdays in Each Month by the

Kenfield-Leach Company

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Telephone Harrison 951

Chicago, November 2, 1915

Vol. XLVII No. 9

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

THE EDITOR of this magazine recently had occasion to visit one of the largest hollow-tile plants in the country. Orders were coming in so fast that it was necessary to run two ten-hour shifts.

In the machine room were two complete equipments, each capable of producing an output equal to the drier and kiln capacity. The necessity for the double equipment was found in the frequent shut-downs due to wear and tear on the machinery.

The superintendent pointed to a set of gears, so badly worn by a few months' work as to have lost most of their original outline. "If we could buy gears that would give the kind of service they ought to give, we wouldn't have a tenth of our present repair bill," he said.

"The manufacturers of this machine tell me," he continued, "that they cannot give us better gears, because they would have to make them up especially for us, and that it would necessitate new patterns. Other clay plants, they say, won't pay the price of the better grades of steel, and so they cannot afford to stock up on any thing but the poorer grade."

These "other clay plant owners" who have earned the reputation of being "close" buyers, use, in their daily sales-talk, the "Economy of Buying Well" argument. Every time they ask a price, they say a word or two about the lower upkeep and better wearing quality of their product to offset the lower price given by some competing material.

But when it comes to buying equipment, they are very apt to say something or other about the man with the best figure getting the job.

Whether justly or not, the clay products industry has been given the doubtful compliment of being penny-wise-and-pound-foolish. Manufacturers of power-plant and similar equipment say that they have more difficulty in inducing clay plant owners to buy economically—by buying well—than comes to them in any other line of business.

Specialists in clayworking machinery, such as the house that made the machine alluded to in an earlier paragraph may have hesitated about putting maximum efficiency and maximum wear into their machines, fearing that the higher first cost made necessary by this excellence would put them out of the running.

All of which would be strange enough, if applied to an industry that made its sales by offering a low priced article in competition with better quality products.

It is much more than strange when it comes to a business that makes its greatest successes where its product is advertised and sold on the "Economy of Buying Well" basis.

Buying well is economy.

There is a reason—there must be a reason—why owners of clay plants have earned the name of being "cheap" to their own detriment. The industry is known to be wasteful of fuel, of labor and of material. It is known to have the poorest of poor selling methods. Now it is accused of having poor business judgment.

What is the reason? This magazine will be glad to continue this editorial, in season and out, until such time as its readers learn the lesson it seeks to teach. How many of its subscribers will supply the ammunition by giving instances wherein they have lost out by purchasing poorly designed or poorly made equipment—simply because it was "cheap"?

Buying Well Is Economy

In the meantime, it would be well if every clay plant owner asked himself the question "Does this apply to me?" The great diversity in the amounts of capital invested, the vast difference in the products, the varied processes thru which the clay is made into something vitrified or vitreous, makes division difficult.

The Editor's Corner

It is impossible to say that all plants with an investment of a certain amount or more are free from the suspicion of showing poor judgment in their buying. So it is similarly hard to say that all plants making a certain product or using a certain process are managed by far-seeing men who buy well because they buy for service.

How many times, during the past year, have you told some man who wanted to sell you new equipment that you thought you would "make the old machine do for a while"? You knew that patching up the old machine would not help you to increase your output, nor to improve the quality of your ware, nor to cut your labor cost—but

Aren't there times when you are a little too smart for your own good?

Every time you buy well—that is, buy wisely—you are economizing. A new machine is, as a rule, economy—not extravagance.

Buying well is economy.

Putting Life In the Business

Life—the process of growing—is the least understood and therefore the least valued of our attributes. Yet it sums up nearly all there is in human interest.

If your business did not grow it would be a burden to you. Growing, it takes you by the hand and leads you into green fields and beside running brooks. For you know that while it grows it has the life spark; when it stops growing, it begins to die.

Somewhere in your plant is a man who has been with you for some years. Your business is his life-work. He has been faithful to you by being true to himself. He has not shirked, nor taken days off. With the years, he has grown a little more valuable. You say—altho you do not mean it, that you "could not get along without him."

Are you doing anything to put life into the only business he knows? Have you altered the figures that have followed the dollar sign on his pay-envelope for several years? Have you thot how he must feel, to know that his business is not growing?

"Business As Usual"

A subscriber in New Zealand, finding that the war in Europe was beginning to send investors to cover and so curtail building, put in new brick machinery and an electric shovel, with a result that he was able to reduce the price of his common-brick from $10 to $9 per M. without having the deduction show in his profit and loss account.

The reduction in the price of commons has induced an appreciable number of investors to come forward and build who would have otherwise "held tight".

So, while a number of plants in the Dominion are running half time and some are entirely closed, this subscriber is on full time, with no extra overhead on account of decreased output—loading his cut-price into the electric shovel and grinding it up in the latest improved brick machinery.

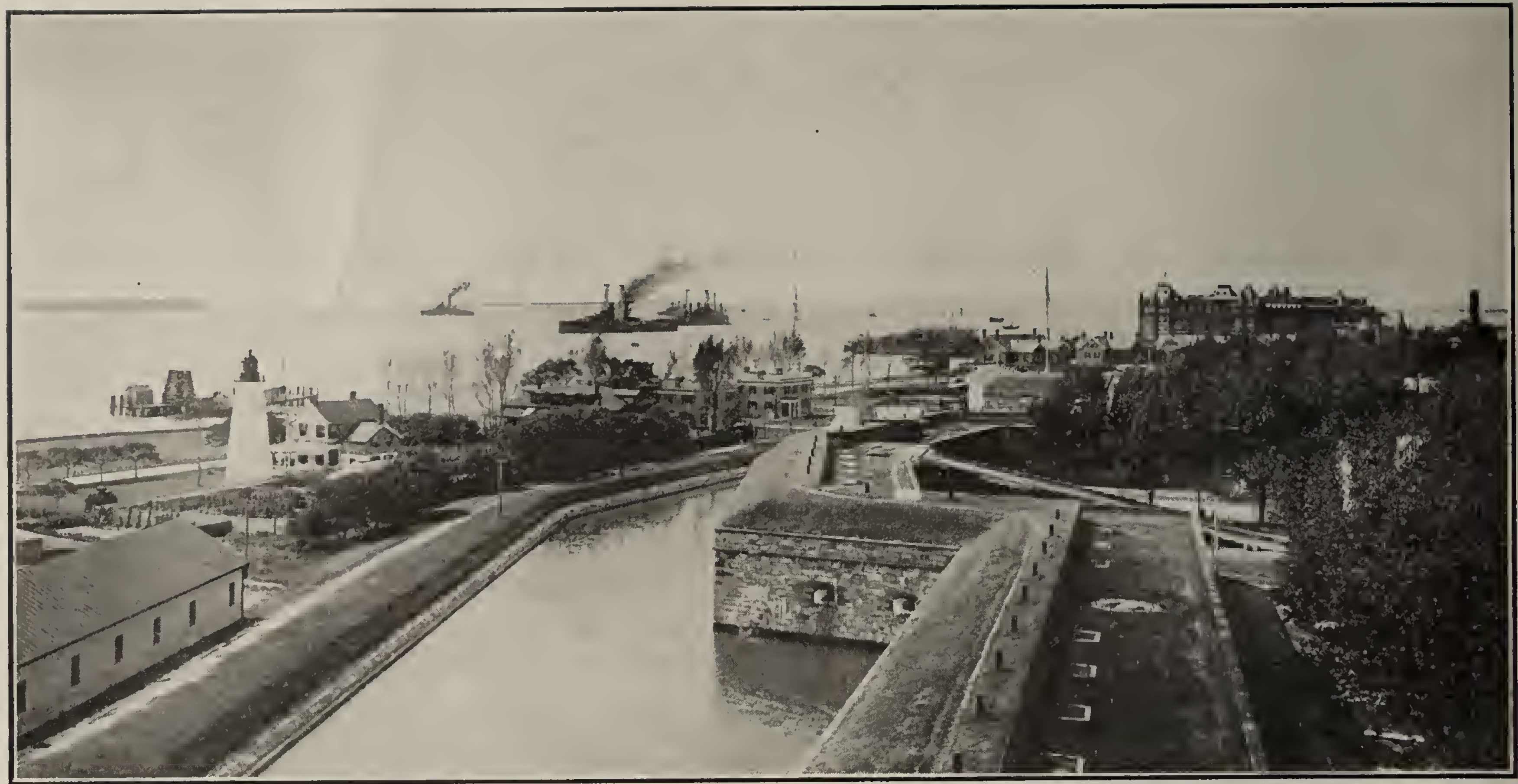
The Sales Manager

Attention is called to a new department in "Brick and Clay Record" which starts with this issue. It is to be called "The Salesmanager" and will be devoted to hints and helps and anecdotes that have to do with the marketing of burned clay products.

This department will last as long as the readers of the magazine show interest enough in it to contribute items of interest. Without their aid, it would speedily become a place for platitudes—which is a polite word to indicate dead fish.

It can be made to bristle with life and incident. It is away from the narrow plant environment and out in the world. It brings one to the other.

So it is offered to you to do with as you will. We will pay a good space rate for good stories—a larger space rate than the "Saturday Evening Post" when the difference in the number of subscribers is considered.



The Ramparts and Moat of Fortress Monroe, Showing the Hotel Chamberlin and Hampton Roads in the Distance

HAROLD W. HOLMES
President American Face Brick Association

Big Guns Will Boom
at meeting of
Face Brick Makers

Choice of Historic Old Point Comfort Assures Unusual Military and Naval Attractions at Coming Convention of American Face Brick Association

EDITOR'S NOTE: No effort will be made in this issue of "Brick and Clay Record," to give even an inkling of the constructive work that will be reported and planned at the coming convention of face-brick manufacturers. A more detailed story will, it is hoped, be ready for the next issue. In the meantime, it will be well to put a big "ring" on your calendar, centering on the chosen dates—December 8, 9 and 10, 1915. If you make or sell face-brick you will want to go—and now is the time to make your plans.

OLD POINT COMFORT, which is Fortress Monroe, Va., has been chosen for the 1915 meeting of the American Face Brick Association. In the Hotel Chamberlin, facing the tossing waters of Hampton Roads, the "big men" of the face-brick business will meet three days in December—the 8th, 9th and 10th—and discuss the problems of that branch of the industry in which so much of their capital is invested.

The officers of the American Face Brick Association have extended a cordial invitation to makers and sellers of face-brick, to come to this convention prepared to learn something of the effective work that the association is doing for the material they are handling. Membership in the association is not a prerequisite; all that is necessary is the desire to see the making and marketing of face-brick a growing and prosperous field of business endeavor. Admission to the "closed" or members' meetings will be by card, but there will be a sufficient number of open meetings to warrant the belief that a trip to this convention will be well worth any man's time and expense, with a great deal of pleasure thrown in for good measure.

It is not known, as yet, whether the Face Brick Dealers' Association will meet with the manufacturers, but it is thought that very few dealers from important cities will miss this chance of meeting so many of the leading manufacturers, at one time and at one place—a time and place where agencies have a way of changing.

The selection of this world-famous resort came after a mail ballot, participated in by the directors of the association. They had, for choice, six places, all nominated by the members. They chose Old Point Comfort, many of the votes in favor of that place coming from manufacturers whose plants are west of the Ohio river.

The wisdom of the choice will be found in the attendance, which, it is expected, will be somewhat better than that of the 1914 meeting at French Lick, Ind. Then there were present one hundred per cent of the membership—a record. The superior attractions of Fortress Monroe will, it is expected, result in each firm's sending (?) at least two of its members. It is said, too, that the attendance at French Lick will be bettered at Old Point Comfort, thru the desire of some of the "silent" partners to be convention-goers. This is a delicate allusion to the wives and daughters of some of the members. French Lick has many attractions for the fair sex—but they (the attractions of French Lick) fade into insignificance when compared to the lure that comes with the gold braid of naval officers, the music of Marine Bands, the flashing lights of ships-of-war—the nearness to the pulse of the Nation, now stirred from its rhythmic beat by the echo of Europe's war.

Old Point Comfort has historic interest. Here it was (on Hampton Roads) that the Monitor and Merrimac fought the first battle of iron-clads, and started the construction of steel forts—floating and submarine. Across the narrow water lies Norfolk, Va., quaint and southern as cities a hundred or more miles toward the gulf. Yorktown, Newport News and Porstmouth (with its Navy yard) are all within a few hours' sail; indeed, the Hotel Chamberlin has a touring yacht that makes all of these points, twice a day, for a dollar fare.

At the Ship Yard, in Newport News, Va., they are building the largest battleship ever planned by this or any other government. It is the "Pennsylvania," and enough work has been done upon it to give some idea of the immensity of this unit in America's "First line of Defense." The management of the Hotel Chamberlin has assured the officers of the American Face Brick Association that the delegates and guests at this convention will have no difficulty in securing admission to the Ship Yard, where they will be shown over the entire plant, including the dry dock.

If what is seen at Newport News prompts an appetite for still more ships-of-war, there is a Navy Yard at Portsmouth; here are always to be found war ships—at present they are "entertaining" two interned German cruisers.

The Swimming Pool and Atrium at the Hotel Chamberlin. Here Artificially Heated Sea Water Is Continuously Pumped to One of the Finest Bathing Pools in the World

Fortress Monroe is the largest Coast Defense in America. The Commandant of the Army post is very pleased to extend its courtesies to visiting organizations, and it is almost a surety that a special dress parade will be arranged for some day during the convention, and in its honor. Then and at other times, a detail of soldiers will be available to show the members and guests the operations of the big coast defense guns and mortars.

For those who are more interested in Colonel Bogie than the Board of Strategy, there is a very good golf course (nine holes) about twenty-five minutes ride from the hotel, by trolley. This course is operated by the hotel and will be open to members of the association.

Chesapeake Bay, of which Hampton Roads is an arm, is renowned the world over for its sea food; oysters, clams, crabs and salt-water fish are in abundance. The splendid cuisine of the Hotel Chamberlin is too well known to need description. Lest the writer of this paper be accused of applying literary gold-leaf to the *fleur-de-lis* he will simply say that if John D. Rockefeller's diet is confined to the list published in the daily papers, the Hotel Chamberlin is no place for the Oil King.

Nature has done much for Old Point Comfort, and the management of the Hotel Chamberlin seems to have added a few things that nature overlooked. In order that it may be an all-year resort for seekers after health and pleasure, a modern, scientific, well appointed bath establishment and swimming pool has been installed—the one feature that had been lacking to make the Chamberlin meet every want of the modern tourists.

The swimming pool is for those who

The Hotel Chamberlin, Where the American Face Brick Association Will Hold its Annual Convention In December

The Private Bathing Beach of the Hotel Chamberlin. Altho the Gulf Stream Helps to Raise the Temperature of the Water, It Is Not Expected that There will be Much Open Air Bathing in December

bathe for pleasure as well as for those who seek the well known medicinal properties of sea-water bathing. It is furnished in ceramic mosaic tile, and the water surface, forty by seventy feet, is radiant with sunlight from the enormous skylight above, which covers almost the entire pool. All of the delight and benefit of the ocean swim (minus the breakers) are here provided indoors, for the pool is filled with filtered sea-water constantly pouring in from the Bay in front of the Hotel. In cold weather this water is heated to the proper temperature, and there is a most grateful sense of space, of light, of fresh air and freedom —usually lacking in the indoor pool. The aerial water slide pitched fifty feet in the air provides a "stunt" sufficiently exciting and exhilarating for the average visitor.

No other place in America can claim anything approaching the Pompeian baths and swimming pool at the Hotel Chamberlin. It is said that one must go back to the old days when bathing was at least a cult, if not a religion, for any comparison.

The atrium measuring the length of one side (seventy feet) is just high enough above the water to give the onlookers the sense of participating. This gallery is a broad, spacious room, so dainty in color effects and of appointment, so perfect to their period, as to suggest that one has drifted back to Pompeian days.

The Hotel Chamberlin at Old Point Comfort has long been known as a "health resort." It is not, in any sense of the word, a "sanatorium"—but is a sumptuous hotel, remarkably situated, and with unusual and exclusive natural advantages of location, sea air, climate, ocean baths and mineral springs, coupled with every benefit and appliance that science can contrive; so it has been called the "Place to Get Well," but better than that, it may be said to be the best sort of a place in which to loaf and "rest up" from the strenuous year of cut prices and all the other ills to which the face-brick business has fallen heir during 1915—the year that was called, at its birth, "The Year of Promise."

Association Notes

In the preliminary announcement that has been made relative to the coming convention of the Canadian National Clay Products Association, to be held at the King Edward Hotel, Toronto, Ontario, January 18, 19 and 20, 1916, a brief schedule of the plan of the meetings is given. Among other interesting features will be a theatre party, to which all of the delegates and guests are invited, and at which the performers will be equipped with sufficient knowledge as to the names and peculiarities of the members and visitors, to insure many hearty laughs. Incidentally, the theatre is owned by one of the officers of the Canadian National Clay Products Association, and the "lid" will be removed. Then there will be the big banquet at the Prince George Hotel on Wednesday evening, January 19, at which a particularly fine musical and vocal program will be given. Some of the papers that are scheduled for the meetings are: "Use of Slaked Lime in Preventing Cracking of Clay Wares in Drying"; "Manufacture of Roofing Tile from Ontario Shales"; "The Future of the Face Brick Business"; "Clay Plant Equipment"; "Operating Clay and Shale Pits in Canada"; "Silo Blocks and their Use"; "Safety First in Clay Products Plants" and "Hollow Ware Dies—their Troubles and How to Correct Them."

There seems to be some conflict of opinion between the several "good roads" associations, based, it may be surmised, on the decision of the American Road Builders' Association to hold and countenance but one convention each year. This was too drastic a proposition for the promoters of Good Roads Shows—a subject that has been touched upon, before, in these columns. As it is, the proposition to hold an International Road Congress at Worcester, Mass., December 14 to 17, 1915, has brought forth some very strong resolutions from the American Road Builders' Association, declaring that, while the Association sympathizes with the Chamber of Commerce of Worcester, Mass., in its efforts to arouse public interest in the improvement of the highways, it feels that its pledge, given some time ago, to hold no convention and to support none during the year 1915, would be violated if it gave even its moral support to the Worcester movement. To sort of clinch this, the American Road Builders' Association announces that it has chosen January or February of 1916 as its convention month, and either Cleveland, Ohio, or Pittsburgh, Pa., as its place of meeting. It winds up its notice with the words: "The decision to hold the Annual Good Roads Show only in connection with the annual convention was made owing to what seems to be a very general demand from manufacturers. No pains will be spared to make the forthcoming exhibition the largest and most valuable of any ever held under the auspices of the Association." The Association believes in "one good show and a big one" rather than a lot of scattered, small shows, that do no one very much good, unless it be the promoter.

Coming Conventions

Dec. 7 and 8..........Sand Lime Brick Association (Manufacturers)..........Republican House, Milwaukee, Wis.

Dec. 8, 9, 10........American Face Brick Association (Manufacturers)........Hotel Chamberlin, Fortress Monroe, Va.

Jan. 18, 19, 20........Canadian National Clay Products Association........King Edward Hotel, Toronto, Ont., Canada.

Feb. 8, 9, 10........Illinois Clay Products Association........Hotel Jefferson, Peoria, Ill.

Feb. 17, 18, 19..........National Builders' Supply Association..........Hotel Statler, Cleveland, Ohio.

Feb. 21 to 26........National Brick Manufacturers' Association........Hotel Statler, Cleveland, Ohio.

Feb. 16 to 26........THE COMPLETE BUILDING SHOW........The Coliseum, Cleveland, Ohio.

Uncle Sam Aids in Marketing Waste Products

Government experts have lately been concerning themselves with the problem of finding a market for odds and ends of raw material that in almost every American industry have often, heretofore, been allowed to constitute a dead loss.

Already it has been demonstrated that this particular form of conservation is going to result in aggregate savings of millions of dollars.

In many of the clayworking industries, the waste is out of all proportion to the value of the output. This waste is, at times, worse than a "dead loss" because it entails the expense of removal.

Fortunate, indeed, is the plant that has found a market for its broken pipe, brick bats or potsherds—"found" is the word, since a market is seldom sought. Few instances are known wherein the maker of a burned clay product has gone out to find a place where what is useless to him might be of use to another.

There is said to be a concern in Michigan that is disposing of all of its underburned paving-brick and all of the breakage of its plant to a manufacturer of a flexible shingle to which the ground clay gives a pleasing color and an unburnable body. One of the Akron sewer-pipe plants has disposed of a great part of its breakage as an underdressing for the private roads running thru a large estate that lies a few miles away. Many brickmakers have been able to secure local road improvement contracts and to secure the adoption of bats as road filler—this having to do, of course, with dirt roads or macadam.

From the "Agricultural Digest."

All of which is worth the consideration of the clay products manufacturer; he is a tax payer and as such is entitled to his share in all of the activities of the government. A little inquiry along this line might result in unearthing further information and possibly in inducing the government to include the waste of clayworking in its investigations.

It is said that the advice of Uncle Sam's "Waste Utilization Experts" is to the effect that a manufacturer will best serve his interests if he will, offhand, develop a side line which will permit him to use his waste at his own plant. That, of course, is working along economic lines because the transporting of the waste adds a cost which, at times, makes disposal very difficult.

Crowds Besiege Brick House at San Francisco

E. C. Kimbell, publicity manager of the Panama-Pacific Clay Products Association, writes us that 18,576 visitors checked through the model, fire-safe residence at the San Francisco Exposition from Sept. 9th to Oct. 8th, inclusive.

Figuring Sundays out, this leaves twenty-eight days and an average of 663 persons each day. The exhibit is open about eight hours a day and this would look very much like 80 persons an hour, which is better than one a minute.

"Dick," as E. C. Kimbell is familiarly known, says it is only by getting these people into groups and talking at them in mass, that he is able to handle the crowd and be sure that each one hears something about the excellence of fire-safe construction and the economy of building with brick.

Cleaning Scummed Brickwork

Another remedy for efflorescence on finished brickwork comes from Professor Williams of the University of Illinois, who says that, if the wall presents a rather recent case of scumming, a ten per cent solution of muriatic acid will remove the discoloration. In case of dirty buildings, as are seen in smoky cities, probably the best and most efficient mixture is simply a one per cent solution of ordinary laundry soap. After the building is washed with this solution, it should be washed again with a ten per cent solution of muriatic acid.

Utah Brick Company Gets Large Order

The Provo (Utah) Pressed Brick Company secured one of the largest orders in its history recently when it signed up with E. H. Dyer and Company, of Cleveland, Ohio, for two million brick to be used in the construction of a sugar factory at Spanish Fork, an adjacent Utah town. As a result of this business the company has begun working two shifts of men, but even with this additional help, it will tax the capacity of the plant for several months in order to deliver this order by March 1, 1916.

W. S. Belmont, manager of the plant, expects to make some changes in the kilns to secure greater efficiency in that part of the manufacture.

In addition to the large number of brick which this company is now making and will continue to make for some time to come, thousands of feet of drain-tile are being manufactured, a number of orders having been recently received for this ware. Mr. Belmont has just returned from a few trips to various parts of the state where large orders were secured for tile.

This plant has its own electric lighting system, the current being generated by a dynamo which is operated by a water wheel. Water also furnishes most of the power for the plant—that is, when the mill race is not low, in which event, a steam engine is used.

American Pottery and Glass in Cuba

In reporting the trade conditions for October, "The Americas"—issued by the National City Bank of New York—speaking of the market for American wares in Cuba, says: "Local dealers in earthenware and glass appear to be well stocked at present, and many of them will not require any replenishments for nearly a year. Most of the crockery is imported from England, but it is believed that American manufacturers can compete if they will take the trouble to copy the style of the articles in demand here. The tastes of this country in these articles were formed long ago from articles imported from Europe. Example should be taken from Holland and Germany, whose manufacturers copied the samples of English earthenware, and by so doing secured much trade of this country. Glassware from Germany finds the best market here, but orders are now being placed in the United States.

"In regard to the packing of earthenware and glass goods imported from the United States few complaints are heard, in contrary to reports received from South American countries, and it is generally remarked that American manufacturers have greatly improved their service in this respect."

"Clayworking Problems"

Within the next week or two a valuable addition will be made to the literature of clayworking. The book is now being printed by "Brick and Clay Record," and is the result of numerous requests from our subscribers that we incorporate in book form a number of the questions that have been asked thru our department of "Questions and Answers" and which have been answered by the leading men in the several fields from which the questions came.

More than one hundred problems, covering nearly every phase of the brickmaking business, as well as the manufacture of drain tile, sewer pipe, stoneware, and other lines of pottery, hollow-tile, and other clay products, are republished, together with the answers, and, in many cases, comments made upon the answers.

The edition will be gotten out in hard binding, and will be printed on heavy plate paper. It will be called "Clayworking Problems" and will sell for $1.50 post paid.

Massachusetts Newspaper Believes in Brick

Discussing the advantages of brick as a building material and its growing use, the Springfield (Mass.) "Morning Union" in a recent edition said:

"Economy, durability and beauty are three of the recognized tests for any building material. Brick is being crowned with all three. Stucco is being crowned with beauty and economy, but durability is being withheld for a time. Concrete is granted durability without argument, its economy is a matter of debate and its beauty is dependent upon a thinly classed taste. Wood has been bestowed with all of the terms with a time limit clause in durability, and with wood adherents pleading that their material lasts the lifetime of one generation.

"Therefore, the contest appears to narrow down to brick against wood on the larger scale. There is no question about which is the more durable. It can be said that the evolution of brick and the evolution of the building material problem will receive vast advancement when the public is convinced that brick is as economical as wood."

A Hand Book of Burned Clay

While purporting to be a price-list, the new Gladding-McBean and Company booklet is, in reality, a very complete hand-book of burned clay products, covering, as it does, and illustrating sewer-pipe, drain-tile, laundry trays and sinks, thimbles, starting plates and bonnet tops, flue linings, conduit pipes, chimney pipes and caps, mantel tile, promenade tile, fire tile, fire-brick, face-brick, hollow-tile fireproofing, hollow-tile building blocks, flower-pots, palm pots, garden pottery, architectural terra-cotta and roofing-tile. A great deal of very instructive reading matter accompanies the illustrations, relating to the proper use of the products shown. This has to do with laying sewer-pipe and drain-tile, calculating fire-brick, the various bonds of face-brick, brick and tile mantels, and hollow-tile arches. It is a splendid example of good printing, and shows that Gladding, McBean and Company, of San Francisco, Oakland and Lincoln, Cal., manufacture an extensive and varied line of burned clay products.

The Second Post

A prominent brick manufacturer sends us the correspondence which passed between his office and that of a prospective customer. It is reproduced in its original form, without any alteration, save where dashes are substituted for the names of the interested parties.

> ——————— Brick Company, —————, Pa.
>
> Dear Sir:—Please Quote me a Delicerd Price on One Car Fled Brick or I Suppose you Call them Common Brick Collar Buff as much as i Baught 54,000 Face brick from you i am in Title to a Car of Common Brick The ———— ———— Coal Co Will Bee good for your Money, Yours Very Truly

To the above the brick company answered, saying that it was entirely out of culls and quoted a price on the cheapest grade of face-brick which it had in stock. No reply was received to this letter for several weeks, when, as a result of a "follow-up" letter, the contractor sent the following:

> Sir in Reply to yours of Oct 15 i will say I Asked you in Preavious Letter for a Car of No. 2 Comon Buff Brick athat us used Jeneraly for a Flew Brick or a Backing up Brick you Stated that you did not have any Excepting a Brick that Sold at About Eleven or Twelvr Dollars i dont Care about Paying that Price for Common Brick as i Stated i Banght 54.000 Thousand of Face brick From you and at that time i Could not get any Backup Brick From you you Stated that you was all Sold out now i asked you for comon Brick sou give the same Answer so i think that i will Buy Face Brick Where i can Get Backup Brick as well for any Consern That Cares for a Custimer will Provide a Back up Brick When he Buys his Face Brick From them so i will looh Elswhere for My Common Brick this time and the man that Furnishes me with the Shurely will get the next order for Face Brick, Yours Very Truly

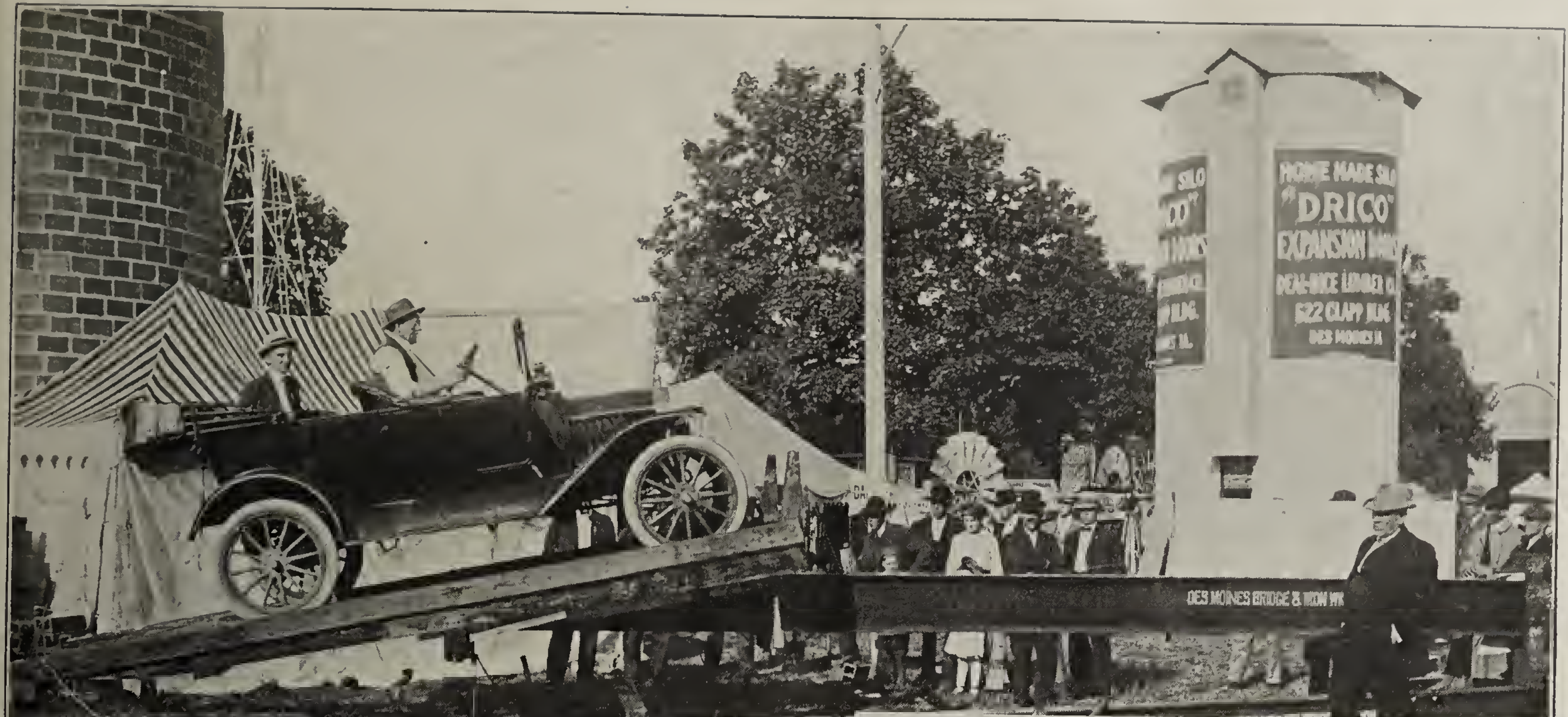
War Hits German Tile Industry Hard

According to the "Tonindustrie Zeitung" the war between Germany and Italy has had considerable influence on the tile industry in Germany. Before the war thousands of Italian workmen were employed in the German and Austrian tile factories, mostly as burners.

In the clay pits also, numerous Italians were working, as it was almost impossible to get Germans to do this kind of work. Many times owners have tried to replace the Italians with workmen of their own nationality, but all these efforts have failed.

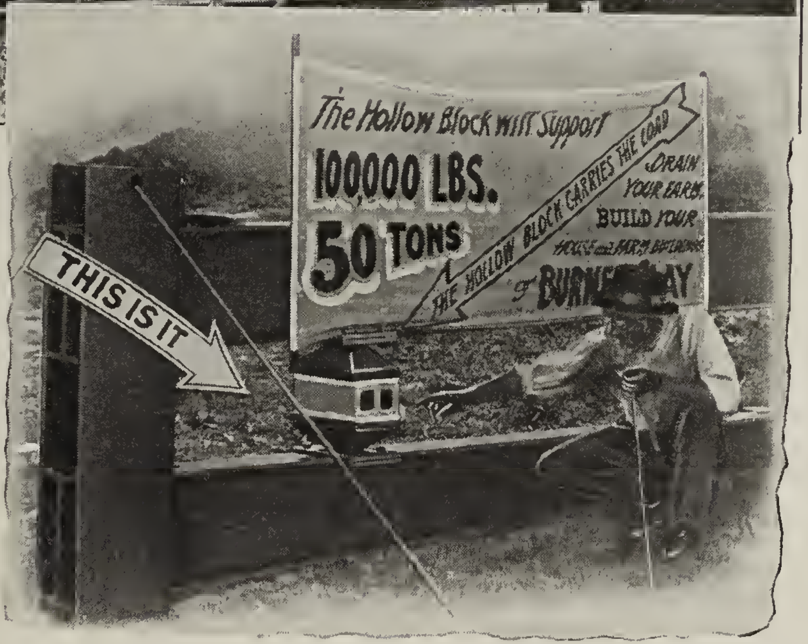
Now that Italy has entered the war, the Italians have returned to their native country and it is impossible for the German and Austrian tile manufacturers to replace them, especially in those factories where they were working at annular kilns. Here the manufacturers cannot see their way clear to obtain other men for the work and as a consequence many factories have been obliged to cease operations.

In the eastern part of Germany from Koenigsberg to the Russian border, the tile industry has suffered severe losses. During their invasion of that part of the country, the Russians destroyed several of the largest and most prosperous tile factories. The newly built plant of the East Prussian Tile Company was completely wrecked. Altogether the damage amounts to several millions and it will take many years before this prosperous German industry will have recovered from the heavy losses caused by the war.



"Matt" King and His 4d on the Handle of the "Nutcracker"

Putting it Over at the Iowa State Fair


The Hollow Block will Support
100000 LBS.
50 TONS
THE HOLLOW BLOCK CARRIES THE LOAD
DRAIN YOUR FARM
BUILD YOUR HOUSE and FARM BUILDINGS
of BURNED CLAY
THIS IS IT

A Close Up View of the "Nut." Made Necessary by the Fact that a Solid Citizen Stepped Between the "Nut" and the Camera at the Time the Larger Picture was Taken

EDITOR'S NOTE: Twenty-one clay products plants, all doing business in the Hawkeye state, have contributed something like Six Thousand Dollars to a publicity fund. The first step was to engage "Matt" King, the Father of the Iowa Silo. Here is told, for the first time, the story of Mr. King's success in interesting the Iowa farmer in the merits of hollow building tile.

WITH A NUTCRACKER of unusual size and power, "Matt" King, the father of the Iowa silo, has demonstrated the fact that a hollow building tile, made of well burned clay, is an exceedingly hard nut to crack. The occasion of his demonstration was the Iowa State Fair held in Des Moines, and the time, early in September of this year.

Those who have attempted to interest the average visitor at one of these fairs, or who have mixed with the crowds that throng the grounds, know what the exhibitor of farm machinery or building materials has to contend with. "Show me" people are so much in evidence that one feels that all of the visitors must be from Missouri—either on the father's or mother's side.

With this knowledge foremost in his thoughts, and remembering that the largest crowd is usually found near the steam calliope, Mr. King, newly elected secretary of the Permanent Buildings Society, set to work planning a demonstration for burned clay that would outrival the noisiest of circus attractions.

The idea of making a very large nut cracker was hit upon. Two 15 in. 24 lb. "I" beams, each 25 ft. long, were yoked together at one end by means of a half-inch steel plate thirteen inches wide, as shown in the accompanying illustration. The plate was then bent under the lower beam and doubled at the top so that where the four-inch pin passes over the upper beam and through the yoke, the plate at each end of the pin is one by thirteen inches. About two and one-half feet from this yoke, a 5 x 8 x 12 in. hollow-tile was placed between the beams—that is, in the jaws of the "nutcracker." Above and below the tile were placed cast iron plates which were mortared to the tile so as to furnish an even bearing surface both top and bottom.

At the outer ends of the beams, or handles of the "nutcracker" a platform or driveway was arranged upon which an automobile could be driven. This driveway was hinged over a timber suspended on the under side of the "I" beam, so that when the car was far enough forward, the front end of the driveway came down and rested upon another cross timber suspended beneath the upper beam. It was then a simple matter to disconnect the muffler on the automobile so as to attract all possible attention, and with one foot on the low forward and one on the reverse lever, the crowd was amused with some rocking horse "stunts" with the 4d carrying three or four men running back and forward on the platform well above the heads of most of the spectators. After repeating this performance for a few minutes, during which time the top lever of the "nut cracker" was pounded down with considerable force, squeezing the "nut," the car was driven snug up against the posts on the front of the platform and the power turned off. Then the operator, Mr. King, would dismount and distribute literature to the crowd.

It is interesting to note that the Society was prepared with literature, which, although simple, was very effective. Coming as it did after a convincing demonstration, it served to crystallize the favorable impression made by the largest nut cracker in the world, so far as anyone present knew, with a "nut" in it that could not be cracked. In the four-page folder that was given out it was stated that one hollow-tile would support from 75,000 to 200,000 pounds. No one was in a position to deny this statement and very few doubted it. As a result, a number of farmers left their orders for brick and hollow-tile with the manufacturers who were displaying a line of ware near by. These were actual orders—a direct result of the demonstration—but no one knows how much powerful seed was planted in the minds of the men and boys who stood by, hoping the "nut" would crack. That good seed was planted and has begun to grow, has been shown by the fact that, since the close of the fair, several orders have been placed with Iowa clay products manufacturers which can be traced directly to the "nut cracker" demonstration.

"Matt" King and His Trusty Camera

It has been said that it is a wise father that knows his own son. That this saying may be applied with striking veracity to the hollow-tile manufacturer and his product, was also demonstrated at the Iowa fair. While Mr. King was performing for the crowds, it was, in a way, humorous to see the manufacturer of the tile being tested, standing by and looking with anxious eyes at the "nut" each time the car jumped forward on the platform. The dead weight was more than ten tons and the shock of the jumping car was very severe. Most of them decided that they had "builded better than they knew."

As has been previously mentioned, this demonstration was staged by the Permanent Buildings Society. As an excellent example of the possibilities of co-operative effect when applied to the marketing of burned clay, the nature, plans and purposes of this organization should be of interest to every progressive manufacturer not only of hollow-tile, but brick and all other clay products.

Twenty-one brick and tile manufacturers of Iowa organized the society early in the year, by pledging a certain sum annually for the carrying on of its work. The original plans centered around the immediate launching of an advertising and publicity campaign to reach the farmer, principally. It was soon found, however, that not enough data was available for the writing of a good set of follow-up literature, so necessary to the success of any advertising campaign. It was therefore decided to increase the fund available for this work from $3,000 to $6,000 and Mr. King, who was formerly connected with the Iowa Experiment Station at Ames, was employed as secretary to gather the information to be later used in the society's publicity work.

Considerable time was consumed in preliminary work and in increasing the original list of supporters. Since the completion of this work, however, Mr. King has been spending his time visiting brick and hollow-tile farm buildings of special interest or carrying on fair demonstrations. This latter work has not been confined to Iowa alone, for after a week of good work at Des Moines, the demonstration was put on at the Minnesota state fair, and later, at the Waterloo (Ia.) Dairy Cattle Congress.

It has been pointed out on a number of occasions that exhibits of brick, hollow-tile and other clay wares at the various state and county fairs are profitable and productive of results. These are neglected opportunities for the most part, and Iowa manufacturers may be thankful to Mr. King for not only demonstrating in a novel and convincing manner the load-bearing ability of hollow-tile to a large number of prospective users, but also for showing the tile manufacturers, themselves, the splendid results that come of well planned demonstrations at fairs.

News Notes from Cincinnati

The Cincinnati (Ohio) Brick Company has decreased its capital stock from $60,000 to $12,000.

Ideal fall weather has stimulated building in Cincinnati, Ohio, to a marked degree, leading many builders to start and rush to completion small houses which, with unfavorable weather, would not have been started.

The Pursell-Grand Company recently secured an order calling for 150,000 feet of hollow-tile for partition work in the addition to the big Pogue store in Cincinnati. Work on this building has reached a stage where the delivery of this material will soon be made.

Deliveries on several good-sized jobs are being made by the Cincinnati (Ohio) Brick and Supply Company, including the chemistry building at the University of Cincinnati, the Warsaw school and the St. Augustine school at Covington, Ky.

W. A. Kurman, sales manager of the Montezuma Brick Works, was in Cincinnati recently visiting the trade. He reports that the company's great horseshoe kiln, 900 feet long, and with a capacity of 1,500,000 brick, is turning out a first quality product, while the sixteen downdraft kilns used in addition are also doing good work.

Among the good things in store for the brickmakers of Cincinnati is the new East High School, the general contract for which has been let to the Ferro-Concrete Construction Company, on its bid of $455,469.

Fire Brick in Boiler Setting

Wherein is Shown That the Methods of Use Are Fully as Important as the Selection of the Basic Material

By William A. Heisel

In "Brick and Pottery Trades Journal"

UNDER THE PRESENT severe conditions imposed upon fire-brick used in boiler work, the best is none too good. In former years little thought was given to the selection of the brick, and a brick of mediocre refractoriness would show a reasonable life. At the same time it must be understood that much progress and advancement has been made in the manufacture of the brick itself.

It would seem from present day experiences that the capacity of most stoker-fired boilers is limited only by the ability of the fire-brick to withstand the extreme temperatures generated.

Efforts have been made to substitute materials with melting points higher than the commercial fireclay brick, but because of the inability of these materials to withstand certain other conditions, such as sudden heating and cooling, pressure at high temperatures, the action of certain gases of combustion, and the chemical action of certain fused ash, these substitutions have failed to realize the theoretical expectations. The other refractories that have been given a trial in boiler work are silica, bauxite, chrome and magnesite. Silica brick, made from silica rock (or ganister as it is sometimes called) and bonded with about two per cent of lime, have the particular objection for use in boiler-furnace work, especially in arches, of being unable to withstand sudden changes of temperature without spalling. The lime used as a bond in silica brick combines with the silica and makes a product that is hard and dense after burning. Although silica brick are highly refractory and should stand high temperatures, it would not be practicable to maintain, in boiler furnaces, conditions that would be favorable to their long life and general use. In furnace side walls silica brick, because they are an acid material, would be readily attacked by the usually basic ash, the ash of nearly all coals being high in ferrous oxide (oxide of iron), which is basic in relation to silica.

Silica would stand the service well with an oil or gas flame, as far as chemical action is concerned, but here again the sudden change in temperature following the sudden turning or shutting off of the burners would cause a rapid deterioration through spalling. With coal the furnace temperature is not so suddenly reduced, as the fuel bed acts as a reservoir of heat. A silica brick in comparison with a fireclay brick has a permanent expansion; hat is to say, upon repeated heatings its size increases up o a certain point, the rate of increase varying with the different makes of silica brick. For example, upon the irst heating it increases, say, to about 0.04 in., upon the econd heating to about 0.03 in., and upon the third to bout 0.02 in.—a total of 0.09 in. If, then, it had reached s limit, further heating would increase the size only temorarily, the brick reducing to its final size upon being ooled. The tendency of the fire-brick is to become slighty smaller, if anything, upon repeated heatings.

Silica brick have been used in the arches of heating furnaces in metallurgical operations, and the expansion of the silica arch taken care of by sets of springs placed on the sides of the furnaces at each end of the arches. This is a costly and an annoying arrangement, so we are told, and so far as known, is not sufficiently satisfactory to meet with general adoption. Chrome and magnesite brick, used in basic open-hearth furnaces, and other places where the temperature and chemical action is severe, would seem to be ideal for use in boiler side walls; but because of their inability to withstand much pressure at high temperatures and the heating and cooling effects, these materials are out of the question.

On bauxite brick experiments are being made to determine their value as a refractory in boiler settings. It has been difficult thus far to make a product of bauxite which will give uniformly good results, by reason of the wide variation in the chemical composition and physical properties of the raw material and the difficulty met with in attempting to control the crude ore. Bauxite brick, too, is likely to spall. From the discovered deficiencies of these special refractories—namely, silica, magnesite, chrome, and bauxite—for boiler furnace and arch practice, it would appear that the manufacturer who is striving to develop an extraordinary refractory product for this class of service must confine himself in his experiments to find the proper combination of fireclays.

Much trouble with fire-brick settings is due to improper selection and ignorance in the use of the materials, and also in many cases to lack of care in constructing and laying up the work. In arches, particularly where the service is hard, care should be taken that all brick in the same row are of the same thickness and shape, as it is difficult to secure high-grade brick of the same thickness and uniformity. A conscientious mason will carefully select his brick, culling out those of irregular shape, and will try the selected brick dry, with a straight-edge, and over the arch form, and then dip them into a solution of creamy fireclay, and rub them in place. Brick of uneven thickness should be cut and rubbed. If this care is not exercised large fireclay joints will be required, and the life of the arch seriously shortened. Wedges should be used as often as is necessary to keep the bottoms of the brick in even contact with the arch form, and the key brick course should make a true fit from top to bottom. The key brick should be driven from 1 in. to about 1½ in., depending upon the hardness of the brick and the width of the arch.

All fire-brick should be laid in mortar of nearly the same composition as the brick itself to prevent a fluxing action, such as would be caused, if, for instance, silicious mortar were used with magnesite brick. In the case of fireclay brick, a good grade of fireclay should be used, the refractoriness of which is practically equal to that of the brick themselves. This precaution is sometimes not taken, with the result that the fireclay begins to melt at a lower temperature than the brick will stand, and in melting dissolves the brick adjoining it, much the same as a piece of copper is melted at a temperature lower than its natural melting point when placed in a pot of melted babbitt metal. Inferior clay used in an arch may therefore result in the softening of the brick and the collapse of the arch.

In mixing fireclay to be used as a mortar, the best results can be obtained by using a certain amount of pulverized calcined clay or brick. This prevents shrinkage of the raw clay, and the crumbling out of the joints.

The analysis does not reveal the way in which impurities occur—in fire-brick and fireclay—an important item in considering the temperature to which the brick may be subjected without danger of failure. The melting point cannot be judged by the analysis. Tests were made on two brick, one having 42 per cent of alumina, 47 per cent of silica, the sum of fluxes being 12 per cent, and the other 50 per cent of silica, 38 per cent of alumina, the sum of fluxes being 11 per cent. In the former the melting point was 3,200° F., and in the latter 3,046° F. It would seem from the similarity of these analyses that these two brick would melt at the same temperature, but owing to the difference in the physical structure one was more refractory than the other.

The temperature at which a piece of fire-brick melts in an electric testing furnace is often higher than this same brick will stand in a boiler or commercial heating furnace, as in such furnaces there are conditions, such as the action of the slag and furnace gases, which are not present in the small electric furnace test. On the other hand, in the electric furnace the brick is surrounded by a high soaking in heat, no chance being afforded for radiation, as is the case with brick in furnace walls in some types of furnace arches. The service due to heat alone is not as severe on fire-brick placed in walls exposed to the atmosphere as in partition or division walls between furnaces, where the heat is acting on both sides of the wall. That this is true is demonstrated by the longer life that arches exposed to the air on one side will show over those subjected to fire on both sides. Although brickwork will show longer life where there is such cooling action, this gain is usually had at the expense of lost heat and energy.

The conductivity of fire-brick is a property seldom mentioned in considering brick for boilers; but tests have shown that a hard-burned, dense brick possesses a higher conductivity than a soft, open-grain one. The chemical analysis does not provide information as to the rate at which a fireclay brick will conduct heat, this property depending upon physical make-up.

A not infrequent cause of trouble in arches is spalling, which is a popping-off of large pieces of the brick. This sometimes results from arch brick becoming frozen or wet through a leaky boiler tube, header cap, drum steam, or water used in washing out or in turbining the boiler tubes. With this condition unnoticed or unknown to the operators, a hot fire is started before the brick have been slowly dried, with the result that some, if not all, of the brick crack and pop off. Once this action is started in any part of the arch the balance is usually doomed to early destruction. This is because the adjoining brick are exposed on more than one side to the action of hot gases, more area is receiving heat, and more heat is being absorbed by these brick than they have capacity to take care of by conduction and by final radiation to the atmosphere or a cooler zone of the furnace.

Spalling, again, may be caused by the natural inability of the brick to withstand the high temperature of large volumes of slowly moving or confined gases. The ends of the brick are absorbing heat faster than they can conduct it to a comparatively cooler zone, consequently the clay in the exposed ends becomes vitrified, the elasticity of that portion is lost, and when further heating and cooling take place the difference in the rate of expansion and contraction between the two parts of the brick causes a separation, the vitrified section dropping off unless held temporarily by the compression of the arch. Spalling is also the result of stains due to inrushes of comparatively cold air striking the incandescent brick and suddenly contracting them. These cold blasts occur when fire doors are held open too long, or when hand- or stoker-fired grates are improperly operated and large holes in the fuel bed permit a strong draught to pull the cooler outside air into the furnace.

A test sometimes resorted to by prospective buyers to determine the value of a brick for archwork, is one wherein the sample is placed in the furnace, brought up to a red heat, and suddenly dropped into a pail of water. If it does not crack it is assumed that it will not spall in service. This is no indication of the ability of a fire-brick to withstand the heating and cooling strain in an arch, as the conditions are not the same. In heating a brick in an open fire it expands uniformly in all directions, and when thus suddenly cooled the contraction is likewise equal in all directions, whereas a brick in an arch is exposed to high temperature on one side and to comparatively cool gases on the other. When the brick in an arch are suddenly cooled by a draught of cold air, the upper ends contract at a different rate from the remaining portion.

It is found that a close-grained, hard-burned brick is usually more susceptible to this action than a soft, open-grained, or porous brick, which is more elastic and better able to adjust itself to this expansion and contraction The theoretical explanation of this is that in a close-grained, or fine-ground, hard-burned brick the molecules are more closely associated, and heat is more rapidly transmitted from one molecule to the other. Open-grained brick for this reason act, we might say, more as insulating material, tending to repel the heat instead of absorbing it. When making this comparison we have in mind only such brick as are made of highly refractory clays, as no matter how carefully a brick may be constructed, if it has not clays of such refractoriness as will resist the action of the temperatures applied, it will be useless for the work. Another trouble with arches is caused by the improper setting of the skewbacks, through a failure to pack them tight against the buckstays at the sides of the furnace, or using with them, as filling-out pieces, fire-brick which come up tight to the buckstays and are set snugly together without fireclay joints.

Arches should be designed and constructed so that they will meet no interference when expanding or contracting. They should not be tied into front wall brickwork or carry the weight of any other part of the setting. One also should strive to secure as nearly as possible the same conditions both under and above the arch for its entire length. In other words, if an arch within a boiler setting is made a continuation of the Dutch-oven arch outside the setting, there is liability of the arch breaking. The extension furnace arch is in contact with the hot gases of combustion of both sides. The rate of expansion of these two differently located parts of the arch, it is evident, will be different.

Arches with too much spring frequently buckle and break their backs when they rise by expansion. A rise or spring of 2 in. to the foot of furnace width is the commonly adopted practice. This gives a reasonable spring to the flatter arch, and acts as a resistance to expansion.

keeping the arch tight. Rounding off the last or end brick in an arch frequently lessens or remedies the trouble caused by the spalling off of these ends, and due to the gases making a short, right-angled turn and throwing an intense heat into the corner of these brick, which have two of the faces exposed.

In considering fire-brick for different parts of a furnace it must be borne in mind that the conditions in side walls are different from those in an arch, and that a brick which often gives excellent service in arch practice does not always give correspondingly good results in the side walls of the same furnace. It is, therefore, well in some cases to use two kinds of brick rather than to try to make one kind do for both places. Arch practice requires a brick that is not only sufficiently refractory to withstand high temperatures, but one that will withstand these temperatures under much compression, that will not spall, and that has a minimum amount of shrinkage and expansion.

Furnace side walls are not so much affected by spalling as they frequently are through the chemical action of the fused ash and distilled gases of some coals. Generally speaking, where coal is used as fuel, furnace side walls require a brick less porous and soft than would be used in an arch, in order to stand abrasion from the fire tools and the cutting action of the clinkers.

Blocks for arches and side walls are sometimes used, and in many cases give better results than standing 9 in. brick. They have the advantage of reducing the number of joints and parts to lay, and the radial arch blocks turn true to the given circle. These blocks are usually made on special orders of a certain combination of clays, are tried for fit, and by some manufacturers machined down, where necessary, on a carborundum wheel to secure level sides and to insure a good fit. On account of the greater mass of contained material, these blocks must be carefully and slowly dried on a cool floor and painstakingly burned.

Among the Potters

The general pottery business is now at its height, and every plant in the Eastern Ohio and West Virginia territory is working to full capacity. Indeed, some of the largest buyers in the country have placed requirements for early spring. Orders with all plants are of a character that insures continued and active operations until the end of the year.

The E. H. Sebring China Company, of Sebring, Ohio, has just started the erection of a new $10,000 office and display sample-room building.

In the Wheeling (W. Va.) territory, the Warwick China Company is now operating every kiln on steady schedules, something that has not been done in a decade. This firm makes vitrified hotel-china and dinnerware.

Anticipating new business for 1916, a number of general pottery manufacturers have completed plans for showing their new lines during the month of January at the Ft. Pitt Hotel in Pittsburgh, Pa.

The National China Company, of Salineville, Ohio, has just placed a new plain dinner shape on the market which is being shown in over fifty new decorations, half of which are exclusively controlled patterns.

Wallace C. Adams has purchased the pottery at Deerfield, Mass., formerly operated by C. R. Thomas and, after making some improvements, will start operations. The kiln was erected about five years ago, the business being conducted by Mr. Thomas for two years.

Pottery supply dealers in the Eastern Ohio district claim that there will be no shortage of English ball and china clays. The English mines are working and it is a comparatively easy matter to procure tonnage reservations on ships leaving English ports for the United States. As a rule this clay is used for ballast, and a considerable tonnage is now available at the port of Philadelphia. Some months ago it looked as if there would be a scarcity of English clays.

Edward Meyers, of Pittsburgh, Pa., has leased the pottery of the Consolidated Manufacturing Company, at Grafton, W. Va., at an annual rental of $21,200.

There is a noticeable shortage of pottery workers in the eastern Ohio district, which is due to the fact that the plants are working to capacity. The action of the Homer Laughlin China Company in starting its No. 1 plant in full operation practically placed every idle pottery worker at a bench. The potteries in the small towns in the vicinity of the East Liverpool district have been advertising for help, both in the clay and decorating departments.

A number of new dinnerware shapes will be brought out by American potters for the January trade. At least seven potteries will have one new shape, and their present shapes will be changed in some instances so as to make them practically a new creation. The demand for new ideas in American dinnerware is growing, and the manufacturers are presenting an improved body and glaze which, coupled with higher class decorations, presents a service equal to many of the imported lines.

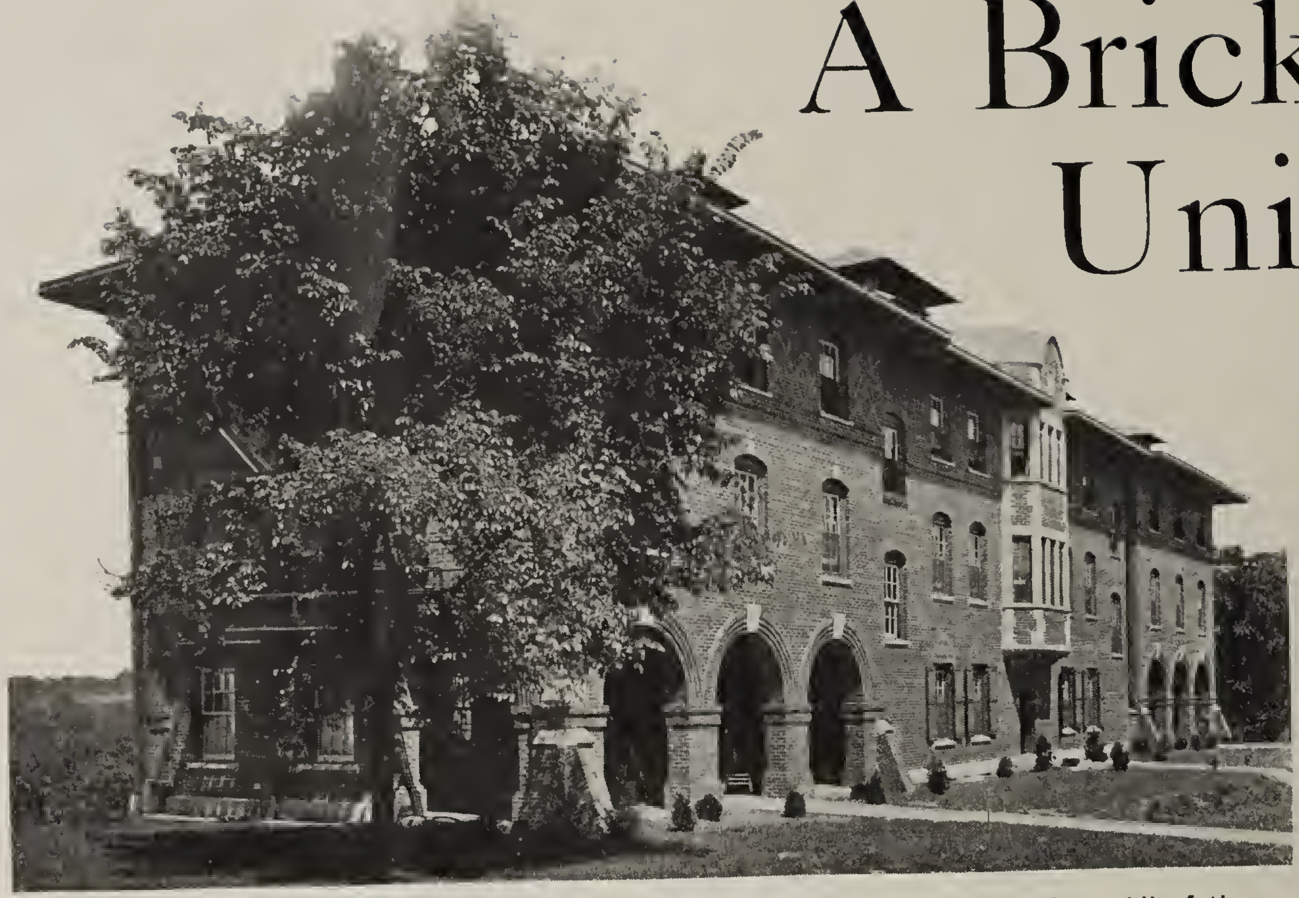
Through arrangements just completed with the Knowles, Taylor and Knowles Pottery Company, of East Liverpool, Ohio, the French China Company, of Sebring, has been given permission to use the famous "Bluebird" dinnerware decoration. The former concern has just obtained three patents on this decoration, and applications are pending for an additional fifteen patents. This will prohibit all other pottery manufacturers from using this form of pottery decoration either on semi-porcelain, china, earthenware or stoneware. It is the first time that such care has been ever taken by an American pottery manufacturer to protect a dinnerware treatment that has had a most remarkable run. Matters have progressed to the point where all the paper used by "decal" manufacturers now in this country has been protected for the use of the printing of the "Bluebird" decoration. This action and the obtaining of so many patents on a pottery decoration has created a sensation in the pottery trade, and also among the buyers.

A Correction

On page 530 of the October 5 issue of this magazine mention was made of the resumption of operations at the Perrysville (Ohio) Pottery Company, which was inactive for a long time owing to financial troubles but is now under the management of the owner, S. Moltrup, and doing a good business. It has since developed that the pottery referred to is known as the Mohawk Clay Products Company, the management of which is not in any way controlled by Mr. Moltrup.

A Bricklayers' University

Being a Description of a College of Bricklaying, Where Poor Boys Are Taught to Be Mason Contractors as Well as Skilled in the Use of Brick and Hollow Building Tile



One of the Dormitories at the Williamson Free School of Mechanical Trades. All of the Masonry of this Building was Done by the Scholars

WITHIN A FEW MILES of Philadelphia, and in Delaware County, Pa., there is a free boarding school at which poor boys may learn to be bricklayers, and not only learn the trade, but secure a good elementary education.

The period of apprenticeship required covers 5,300 hours, divided between studies and shop practice in such a way as to develop the learner's mind, as well as to give the manual dexterity essential for a well trained mechanic. The school branches embrace arithmetic, geography, grammar, physiology, literature, drawing (as applied in the building trades) algebra, physics and chemistry.

The shop work covers all of the elementary steps in the trade, beginning with the simple processes of mixing and spreading mortar, continuing in the practice of laying the various bonds in different wall thicknesses, the turning of the different types of arches, followed by pattern work, such as is used in interior construction.

The learner works under a time system, by means of which his speed is developed as he progresses in the trade. The classroom atmosphere is not different from that found in any school where similar subjects—that is, arithmetic, geography, grammar, etc.—are being studied. Women teachers are in charge of all of these classes, while men who have qualified as practical mechanics are employed as shop instructors.

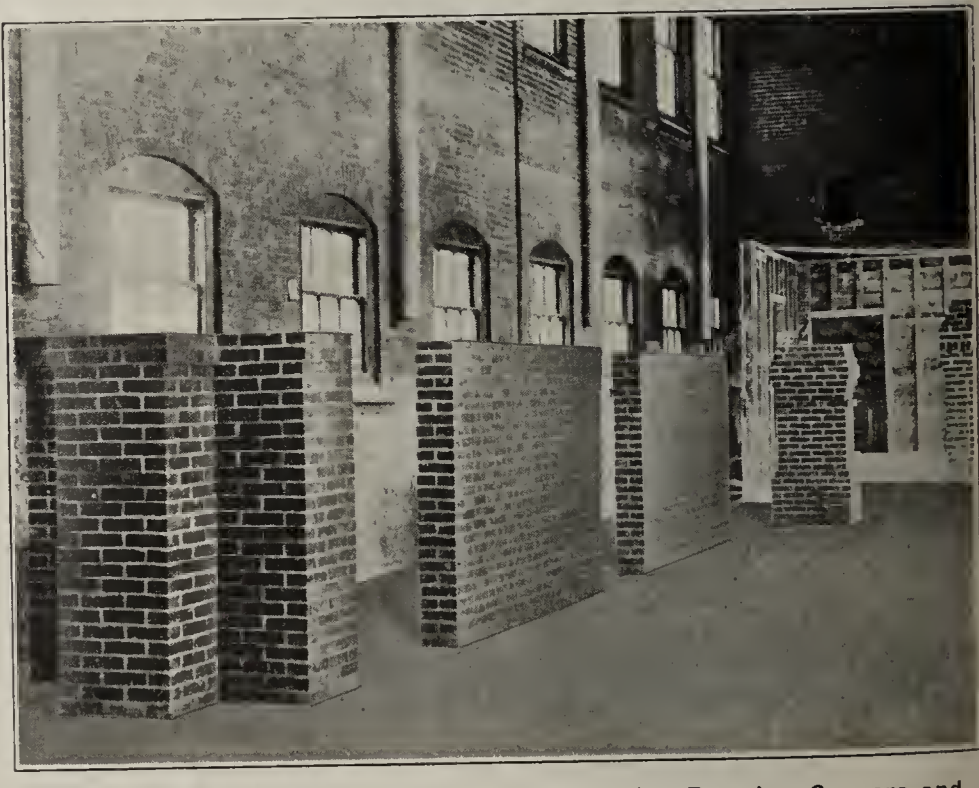
There are forty apprentices in the bricklaying department at the present time, the instructor being Joseph H. Ellis. He is assisted by Joseph Shisler, who devotes his attention to the first year boys; the head instructor supervises the work of the assistant, and takes charge of the training of the second and third year apprentices.

All of the technical trade subjects in the course, such as estimating, leveling and the strength of materials, are taught by the trade teachers in a practical way, but full use is made of the mathematics and science previously covered in classroom work for the solution of the problems involved in the "exercise" that will be described.

These technical subjects are introduced to the class by means of a series of shop talks in which the information is presented in a way that is easily understood and remembered by the learner.

The first talk outlines to the beginner the requirements of a good bricklayer, his course of development and the opportunities that are presented in this trade. The various tools are next described in detail; a glossary of trade terms is presented; the various materials used by bricklayers are discussed; bonds are studied and illustrated by the instructor, while the series of talks closes with studies in the various details of building construction.

The class does its practice work—or it may be said practical work—on exercises on construction. The illustrations accompanying this article give a good idea of



The First Steps in the Course in Face Work. Running Corners and Angles, Corbelling, Racking Back and Simple Banding some of these operations as they are carried on at the Williamson School.

The whole course is built on an exercise basis—that is each job which a boy does is treated as a step in his trade course, regardless of whether it is a job on construction or a piece put up in the shop as a training specialty. These illustrations give a more definite impression of the type of work used in the development of the learner, as well as the general appearance of exercises in progress than is possible by means of a written description.

The school is known as the Williamson Free School of Mechanical Trades, and is located at the Williamson School Station, Delaware County, Pa. It was founded in 1888 by Isaiah V. Williamson, a Philadelphia merchant.

Learning a trade does not appeal to the average young man. Perhaps it is just as well for those who are willing to undertake the tedious apprenticeship or the hard schooling that must precede the acquiring of sufficient knowledge to work, that so many school boys prefer to be presidents of large corporations—or aviators.

Learning a trade implies, in nearly every case, a willingness to work hard—to work with the hands and arms and back—to *do* rather than to plan. For this reason, learning a trade thru ordinary apprenticeship has a tendency to dull initiative; the man who learns a trade "on the scaffold" learns to look forward to doing work that is laid out for him by some one else.

It is for this reason that a school like the one illustrated and described in this paper, fills a great need. It not only points the way to a comfortable competency, but trains its scholars so that following the pointed way is not difficult. The subdivision in the trades, made necessary by competiton, has put laborers in the place of bricklayers, but it has not put the laborer in the place of the wide-awake young fellow who really studies the trade with a view to making the most of it. Such a young man has great possibilities before him, because he can enter business for himself with a very limited capital. This is not true of every trade.

The modern concept of bricklaying involves more than simply placing a brick in a bed of mortar; it assumes a knowledge of efficiency in movement on the part of the worker, some information concerning the handling of stock, the strength of brickwork in various kinds of mortar and the laying out and finding of levels on building sites. It assumes the ability to make drawings as well as to read them, and it also assumes some knowledge of business methods.

Finishing an Exercise Involving Pilasters and the Turning of a Cambered and Bonded Arch

A Third Year Student and an Exercise that he Has Just Completed, Having Introduced Ornamental Banding in Face Work and the Turning of a Bonded Segment Arch

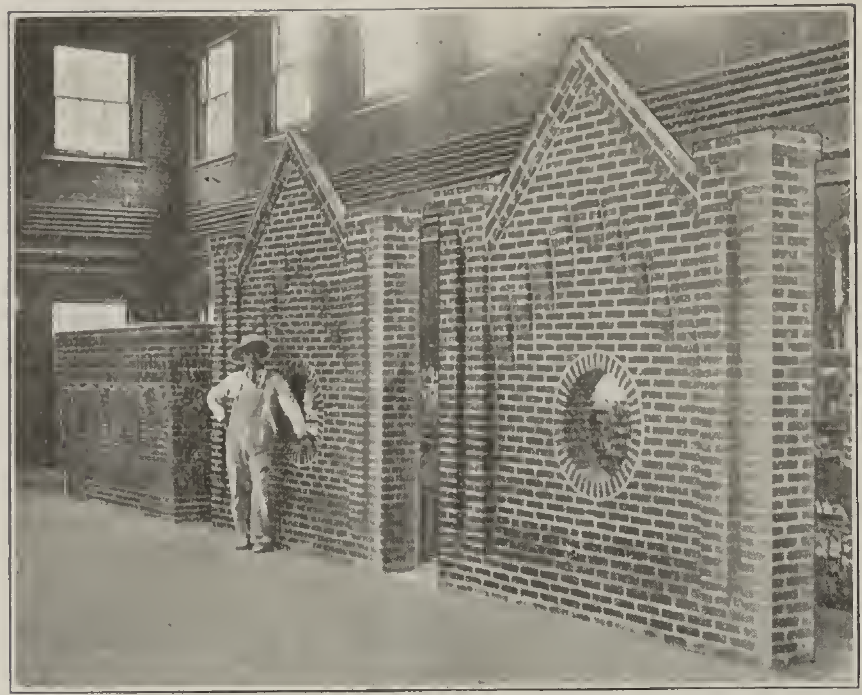
The average boy, graduating from public school and finding it necessary or desirable to work, makes use of a very limited amount of the knowledge that he has gained in school, practicing and pursuing only such lines as are called for in the industry in which he has become a worker.

The educational scheme of the Williamson Free School of Mechanical Trades is such that it accents or lays stress upon those branches of learning which can and will be actively carried into the life work of the student; as a consequence, his employment after he leaves the school is to a great extent a continuance of his classroom work, but in a broader field, and constantly bringing him nearer to his goal, which is to "be in business for himself."

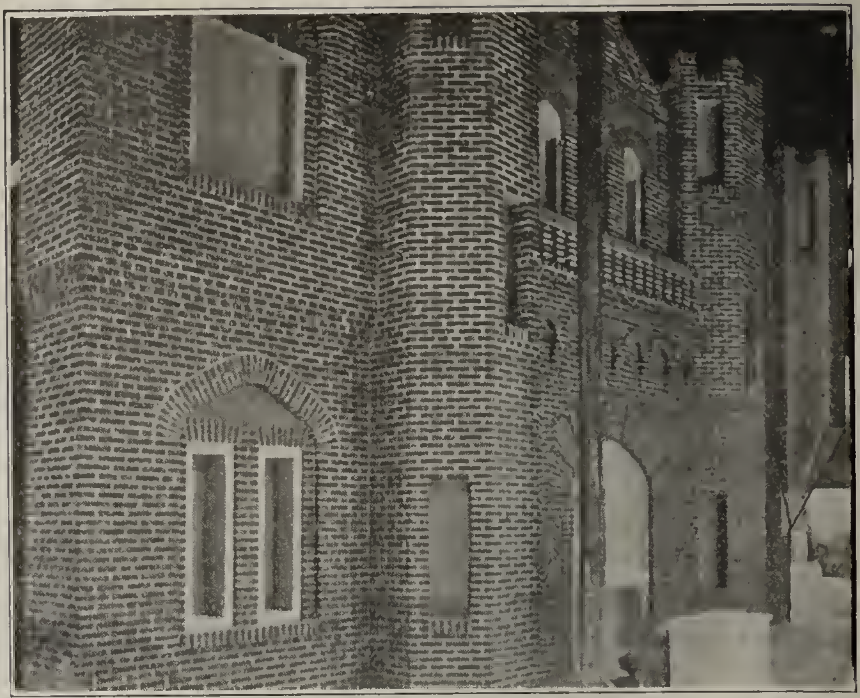
Brickmakers and others interested in the production of burned clay for structural purposes have long bemoaned the fact that there are so few mason contractors and so many bricklayers. It is evident that the laborer has become the bricklayer, and, having brought nothing to the trade but his trained hands and muscles, is destined to stay a bricklayer until his strength is sapped by old age.

On the other hand, young men such as are being graduated by the Williamson Free School of Mechanical Trades make the bricklaying "trade" a profession. To it they bring trained reasoning power as a doctor brings it to his study, an architect to his atelier, or a lawyer to his office. They mix brains with their mortar and build a business as they lay brick on brick. The discipline of the school is carried to work, as the trowel and spirit level to the job.

Theirs is the advantage when comes the inevitable competition. They will have learned the "why" of things. The men who try to stand against them with only the power to do—and not to know the "why" of the doing—will have a short shrift. The men who "learned the trade on the scaffold" will be working for these Williamson School boys in the days to come. Efficiency in the professions, in the arts and in the



Some Problems in Brickwork that Offer Difficulties to Older Craftsmen. Here Engaged Brick Columns, Dentil Corbels and Bull's Eye Windows are a Part of the Students' Work



A Composite Exercise Introducing Various Structural and Ornamental Details into an Assembled Section of a Building. Such Construction is Built by the Members of Each Class Before Graduating

trades is the requisite of future success. It is harder to "get by" with mediocre skill today than it was five years ago. A few years from now the skilled bricklayer will be the one who has learned his trade as a part of a course in some institution of learning—some industrial school that teaches the making and reading of plans and the nature and use of masonry materials as well as the actual laying of brick and setting of stone.

Staining Streaked or Spotted Brickwork

One careless wheeler can, and often does, ruin the front of an otherwise beautiful residence. By some unfortunate circumstance, the off-colored brick seem to stay together in the car, on the wagon, in the pile in front of the building, and even tho divided into hod-loads, seem still to cling to each other so that they all are placed at one point on the scaffold and used by one bricklayer—who generally works somewhere near the center of the building and generally at the second story sill.

In other words, a single barrow-load of brick that is lighter than its fellows, has a way of appearing in the most conspicuous part of the building.

Of course, where the architect really supervises the work, he can see this discolored spot sufficiently soon after it has been built in, to make it possible for him to demand that the brickmason tear down all of this off colored work. If, however, the architect has remained away from the building for a day or two (as architects often do) and the work has gone several feet above the spot, the owner is very apt to have a stained building on his hands and be the only sufferer.

It may comfort some property owners who wish that the wheeler had been more careful or the yard superintendent more strict, or the bricklayer less blind or the architect more constant in his supervising, to know that some brick at least can be stained so that the color will correspond to the general mass. A recent issue of the "Painters Magazine" contained the following articles on stains that could be used on face-brick walls:

We have known of a red brick stain that was made by mixing bright Venetian red with water into a pulp, pressing it through a sieve to break up lumps that were formed in mixing and then adding enough stale ale or beer to make the stain of a proper consistency. To each gallon of this mixture was added one-quarter of a pound of calcined green copperas (iron sulphate) previously beaten up with a portion of the stain to a thin batter. This is the mordant or fixative without which the stain would finally wash off from the effects of rain. This calcined copperas is produced by heating green copperas in an unglazed earthen pot, thus driving off the combined water; under this process the copperas falls into a dry, whitish powder.

A more durable and permanent stain is made with Venetian red that has been ground in pure linseed oil in stout paste form or, if the stain is to be of a lighter shade, a mixture of Venetian red and French yellow ochre, both ground fine in linseed oil and beaten up with a small portion of a good turpentine japan to a smooth semi-paste, gradually adding in small quantities while stirring a mixture of one part (by measure) of 90° benzol or good solvent coal tar naphtha and four parts (by measure) of turpentine until the proper consistency of stain is secured. Strain thru cheesecloth and throw away the coarser particles as these would remain on the surface and be of no benefit in sealing the pores of the brick. An excess of oil in the stain is apt to produce "shiners."

William L. Holmes Passes Away

William L. Holmes, president of the Puritan Brick Company, with offices at Detroit, Mich., and plant at Hamden, Ohio passed into the Great Beyond Sunday, October 31. Surviving him are a widow and four children, among them Harold W. Holmes, president of the American Face Brick Association.

The deceased was in his fifty-seventh year and had been the organizer of a large number of business enterprises, many of which had been successful. The immediate cause of his death was heart trouble, following a period of failing health that had lasted nearly a year.

He was widely known in the face-brick and paving-brick business, the Hamden plant having been changed over from face-brick to paving-brick within the past two or three years.

Controlling Temperatures in Down Draft Kilns

Wherein the Burning Question is Treated in Simple Language and Common Faults in the Application of Heat to the Rougher Forms of Clay Ware Consistently Corrected

By C. O. Arbogust, Cr. E.

EDITOR'S NOTE: The elimination of waste is the clayworker's greatest problem. Fuel waste, labor waste, time waste and the depreciation in the value of the product which follows over and under-burning, spell the difference between profit and loss. In this paper, prepared by one who has added practical experience "on the shovel" to a well grounded ceramic education, the author points a way to efficiency in burning through the medium of a proper control of kiln temperatures at every stage in the process of firing. The article was begun in the October 19 *issue, and is concluded in this.*

THE CLOSING LINES in the first installment of this article stated that under no circumstances should the fire be allowed to reach a white, dazzling heat. Few clays can stand this high degree of temperature, even for a short interval, and as a result, pulled heads and stuck brick result. Overburned and swelled brick are inevitable.

FIRING LIGHT AND OFTEN

But to revert to the four points mentioned. To fire light and often is the best method to control the fuel bed, a constant uniform quantity of heat is produced, and the nearest approach is made to the mechanical stoker, which obviously is economy. It is harder, much harder, but it is right and if it is right, that ought to "cinch" it for "light and often.".

FIRING THIN

To fire thin—it is just as important to keep a thin bed of coals, as it is to build a double wicket. Never fire heavy, don't let the fuel bed get thick (for no burner can handle it); it's a coal waster. Probably no better advice could be given at this point, than to suggest the use of the small shovel on all horizontal grate fires, discarding the scoop absolutely.

If a burner fires a heavy, thick bed of coals you can tell it miles away by the dark, heavy clouds of smoke that pour out of the stack.

You have noticed the burner who fires at intervals of thirty, forty-five and even sixty minutes and then chokes, in turn, each furnace to the brim with coal—here is the result. The heat in the furnaces immediately roasts out of this fresh fuel, all of the volatile gases. These rich gases roll into the kiln in clouds and it is a physical impossibility to supply enough air or oxygen to cause them to burn, and so they "go up the chimney"—as wasted fuel. But that isn't all—that smoke and gas is comparatively cold, and it actually robs the ware of its accumulated heat as it goes through the kiln. Instead of adding to the heat content it lowers it, and continues to lower it until such time as the furnaces start producing normally, which is usually ten or fifteen minutes later. After the volatile gases are burned out and exhausted, the fixed carbon in the bed of coals burns at high efficiency.

In firing slant grate and dead bottom furnaces, don't throw the coal into the box, or allow the fresh coal to roll down inside, but place the coal on the top of the fuel bed where it can coke and then slide by gravity farther down into the box. If the bed of coals does not slide down, it is usually sufficient to rest the shovel on it, the additional weight causing the mass to settle and cover the bars to the proper thickness. By this procedure an action similar to a coking plate is secured.

The horizontal grate furnace may be fired lightly to each corner, allowing the center to take care of itself, or all the coal is placed on a plate in front of the grates and is pushed or spread over the grates after it has coked.

The thick fire is stagnant and lifeless, the grate spaces are filled with ash and clinker, and the box is not productive, although it actually seems to be doing great work. It is hard to clinker and clean, and the use of the clinker bar is necessary in order to break up the matt. This constant stirring up will in itself cause the formatioon of clinker.

A fuel bed—four, five, or not to exceed six inches—is good practice at this stage.

CLINKERING

The operation of clinkering the fires offers a fertile field in itself, for economy in both effort and fuel.

The fires should be cleaned *whenever they need it—not at stated intervals.*

It is obvious that, in order to produce maximum results, all the furnaces must produce a maximum amount of heat. If one or more furnaces become matted with clinker, it or they, cannot produce, and those furnaces must be cleaned at once.

On a round down-draft kiln, it is splendid practice to clean every other or alternate furnaces; thus on the second time around, you will have furnaces on each side of the furnace being cleaned, that are clean and producing heat sufficient to neutralize the cold air that is pouring thru the box or boxes that you are clinkering. Also the excess quantity of volatile gas and smoke that is being roasted from fresh coal is minimized.

The same principle applies on rectangular kilns. Here it is best to clean one side at a time, using the same scheme—to clean every other box, returning and cleaning the balance of the boxes, and then starting on the other side of kiln as soon as the cleaned boxes are producing.

This procedure and variations of it prevents the chilling of the kiln, and all gases from fresh coal is consumed.

Lowering the damper also tends to conserve the heat, altho it is usually a hardship for the fireman, inasmuch as he is exposed to considerable more heat and gases.

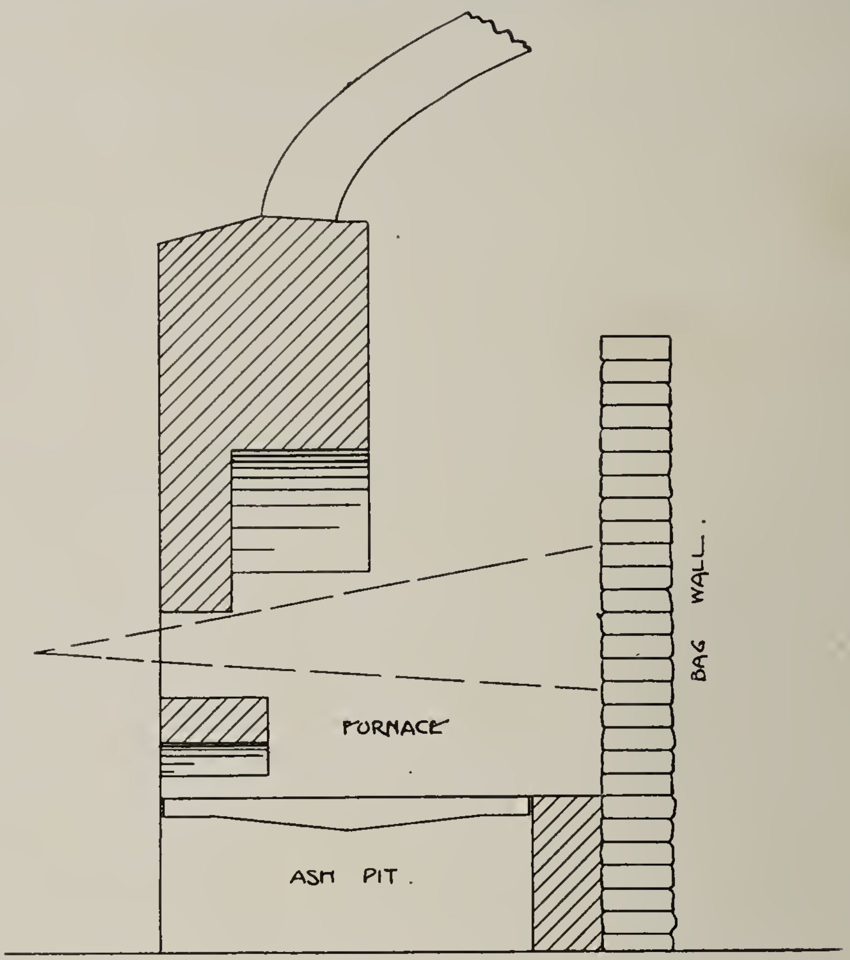
OPEN FIRES

Now for the fourth point—"keep the fires open." It will be recalled that our objective in this period as noted above, is to get the heat into the bottom of the kiln without settling the top ware, and there is only one way to get it there in a hurry: *it must be carried by an excess of air that is not needed to support combustion.*

If the furnaces are closed up tight, we secure only a local heat in the furnace and in the top of the kiln, so it is necessary to heat up a minimum quantity of excess air and have this air carry the heat to the bottom and deposit it.

Air must be used as a carrying agent; there is no other way. Open up the boxes, heat up the carrier, and then use the damper.

It is not necessary to constantly carry a high white heat in the boxes, but it is necessary to save and accumulate the comparatively low heat that is generated, and distribute it uniformly in the lower courses of the ware (lower courses being specified because the top will take care of itself).



CROSS SECTION OF FURNACE AND BAG WALL, SHOWING LINE OF VISION OVER BED OF COALS AND AREA OF MOST SENSITIVE SURFACE ON THE BAG WALL.

DRAFT

It is usually correct to carry a draft just short of roaring. Do not allow the draft to become so strong that the fires roar. A larger quantity of fuel is burned, and the resultant heat is carried through the kiln and whipped out of the bottom into the stack. The bottom ware cannot absorb the heat due to the sharp draft, and such heat as it does absorb is easily lost if for any reason gases of a lower temperature are fed into the kiln from furnaces that are needing fuel and are not immediately replenished.

Dampering is the only means for confining and bottling up the heat in the kiln. If a damper is not feasible then follow the scheme described in A. F. Greaves-Walkers' article on kiln construction.* Mr. Walker advocates as one method of controlling the draft, the taking out (or replacing) of the brick in the man-hole at the bottom of the stack.

Too sharp a draft also has a tendency to burn air-holes in the bed of coals on the grates and if these are not detected the furnace is inefficient; while seemingly carrying its fair share of the load it is in reality doing no work at all, its energy is being expended in heating up an excess of cold air that is not needed.

Along this line it is interesting to note the deductions made by Carl B. Harrop in his paper kiln expansion and bracing†, in which he indicated an amazing loss of heat due to the leakage of air through cracks in the lower positive draft section of the kiln wall.

A close analogy may be drawn between the loss of heat in a kiln due to air leaking through kiln-wall cracks, and the loss of heat in the furnaces due to an excessive influx of cold air thru holes burned in the fuel bed.

HEATING BENEATH THE FLOOR

Do not feel that you are unavoidably wasting fuel in heating the underflue work, for this must be done. Of course, it does not burn the ware directly, but it serves to bring the tapering off point of the maturing heat *below* the floor level where the bottom courses of ware is setting. This line of demarcation between heat that is sufficient to mature the ware and the heat that is not high enough, *must be below the floor-brick.* This is more easily accomplished with a deep system of underflues than with a shallow system.

WHEN TO FIRE

The next question is when to fire, and this is, seemingly the hardest question to answer —possibly the least understood. Yet it actually is the simplest to judge.

It is a common sight to see good coal thrown into a furnace already at a high heat and with sufficient live coal in it to deliver heat to the kiln for a long period of time. It is just as common to see a furnace neglected and in actual need of fuel, pouring cool—instead of hot—air into the kiln; in both instances the burner or the fireman simply could not determine the exact time at which to fire. It is evident that both cause losses—the one a loss of fuel and possibly overburned ware, the other a loss of time and fuel—for additional fuel is necessary to regain the lost heat in a kiln.

We all know that the best results are obtained by a steady flow of heat into the kiln, and with more or less success we try to accomplish this, but our ordinary method of heat control produces always varying heats—a feast and a famine—an alternation of high and low heats.

The author finally struck on the following plan which, in order to impress it on the minds of the burner as a distinct process, has been called "bag wall burning." It it practically infallible and its success is due entirely to its simplicity.

BAG WALL BURNING

The key to the situation is the bag-wall, *because it is the intermediate point between the original source of heat and the ware to be burned.* Every change of temperature is pictured on the bag-wall, and it is pictured there before it is too late—before the heat has had a chance to injure the ware with too high a temperature, or before it has had a chance to cool the ware if it is too low in temperature.

Too hot a fire manifests itself on the bag-wall and before it is transferred into the kiln, by a white incandescent heat; the remedy is obvious—a higher per cent of cold air over the top of the bed of coals and a smaller amount of fuel the next time the furnace is fired.

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*The Design and Construction of Down Draft Kilns, by A. F. Greaves-Walker. Brick and Clay Record issue Sept. 7, 1915, page 346.

†Kiln Expansion and Bracing, by Carl B. Harrop, E. M. Brick and Clay Record, Issue April 6, 1915, page 656.

Too much air over the top of the bed of coals or a fire needing attention or coal is shown on the bag-wall by darkened bag-wall brick. The ends of the brick next to the furnace fire are dark. Between the brick of the bag-wall the body heat of the kiln shows up. *It looks like a dark brick wall laid up with a white mortar joint.*

A dirty fire shows itself just as plainly as extremes of heat, by a dull red, lifeless color on the bag-wall, best described as stagnant. The remedy is to clean out the dead ash and clinker, thus giving the furnace a chance to breathe.

An air-hole in the bed of coals on the grate bars is immediately registered on the bag-wall. The fire may be bright, clear and seemingly pouring sufficient heat into the kiln, but its effectiveness is lost by an influx of cold air through the holes burned in the bed of coal. It is registered on the bag-wall—showing the same dark headers and white mortar joints as when the fire needs fuel. The remedy is not necessarily more coal, but a judicious use of the slash-bar to cover and fill up the holes.

The burner or fireman, after learning to read his bag-wall, is rarely at a disadvantage—he knows at all times just what amount of heat is pouring into the kilns, he knows whether it is high in temperature or low in temperature—he is safe as long as he can see the bag-wall, for he cannot judge heat by the color of the flame, and he should so regulate the fires that the color on the bag-walls remains a constant color. This color is decided according to local requirements and by the stage of the burn, which means that different clays require different heats and as the kiln advances to maturity the degree of heat needed is gradually more intense.

In a rectangular kiln, additional readings almost as accurate can be taken by sighting into the kiln thru the peep-holes located in the end walls of the kiln. By sighting along the crown just over the tops of the bag-wall, the color of heat can be judged and the heat productiveness of each furnace determined. For accuracy this cannot take the place of bag-wall observations taken thru the furnace over the bed of coals, but it should be used in conjunction with direct bag-wall readings.

Briefly, bag-wall burning resolves itself into this—*a method of control is wanted, and this control cannot be attained alone by good judgment on the part of the burner in his manipulation of the fire;* but if he has a gauge whereby he can see at all times just what work his fire is doing, then he has control. This gauge or mirror is his bag-wall. It is inside the kiln, a sensitive interpreter, a go-between, yet in such a position that it is easily read. If it is carefully studied it will announce faithfully all changes in the temperature of the gases entering into the kiln, and the burner is therefore able to control, govern and produce the heats that he requires.

That is bag-wall burning.*

THE VITRIFICATION PERIOD

From a practical standpoint, this period extends from the time at which settle or shrinkage starts, up to and including maturity, which is the condition in which the ware is commercially best.

The clay softens and shrinks in proportion to the amount of heat that is applied and the percentage of flux present. New silicates are formed and the body passes from a porous, spongy structure to a dense, hard, tough material after cooling. A fracture shows that the tendency is towards a glassy condition, depending upon the degree of vitrification.

The degree of maturity varies greatly in different clays and wares. Paving-brick and sewer-pipe, for example, require a higher degree of vitrification than face-brick, and face-brick in turn requires a higher degree of vitrification than common-brick or hollow ware, which are rarely vitrified.

At the end of the oxidation period, a uniform distribution of heat will have been secured in the kiln from top to bottom, and the problem is to increase this degree of heat on the floor of the kiln without overburning the top, and to bring it to such a temperature as will mature the bottom.

The bed of coals in the furnace has been carried thin and it is now advisable to slightly thicken up the fires and proceed more rapidly.

Do not make the twin mistakes of firing too light or trying to force the finish, but rather proceed with the previous tactics of making the kiln a collector of heat and then bottling it up by using the damper.

The damper should be as low as possible, still maintaining a slow, languid draft thru all furnaces.

If the draft is too strong, it simply pulls away all accumulated heat and burns up an enormous amount of needless fuel, and, on the other hand, if the draft is stagnant, a local heat only is secured in the top half of the kiln, causing the benches to split and roll, resulting in an overburned, kiln-marked top and an underburned bottom.

The ware should settle and shrink evenly and at a uniform rate, from top to bottom, and at this stage the principles of "bag-wall burning" must be applied. These principles are particularly valuable if the clay being burned has a short vitrification range.

In conclusion it may be said that we need all the information we can possibly obtain, on the progress of the kilns being burned, in order to be successful; and to be successful is worthy of our very best efforts.

Draw *trials* frequently as the kiln nears a finish, to determine the work being done. Study *heat colors* so that you can determine by sighting into the furnaces and peep holes, heat advance or loss. Take *settle records* frequently to determine rate and amount of settle. Use *cones* to determine work accomplished—and last and most important of all, use a *pyrometer*, that you may determine the progress of the heat at every stage of the burn, that you may be able to duplicate good results and avoid poor results.

It is possible to successfully determine the finishing point of a burn by any one of the above methods, but the chances for a successful "closing out," are slim indeed, when compared to the use of all five points. Do not tie to any one method, but endeavor to become efficient in all.

A burner is the real producer; if he will with enthusiasm make an effort to dig into and master each single phase of his own individual burning problems, he will become efficient, and efficiency is—just makin' good.

101 Questions and Answers

are published in the new book "Clayworking Problems" now being printed by this magazine. It will sell for $1.50 post paid.

"Do Your Christmas Shopping Early!"

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*Bag-wall system of burning is particularly valuable in judging the heats produced in the side furnaces of the Haigh type of a continuous kiln. Here the ware is exposed to the direct heat of the bed of coals, with only an inadequate checker work baffle of fire-brick for protection.

Clayworking Plants Increasing in Size

Government Report Shows Competition and Consolidation Reduce Number of Small Plants But Quadruple Output

AS REPORTED in the August 3 issue of this magazine, the figures collected by the United States Geological Survey for the year 1914 were not altogether encouraging. At that time, preliminary figures were given. Now we are able to give the exact amounts, as shown in the booklet "Statistics of the Clayworking Industries in the United States in 1914," published on October 23, 1915.

One remarkable point brought out in the report is the fact that the number of clayworking plants is becoming smaller each year. The report says:

"A notable feature of the clayworking industries in the last few years has been the concentration of the industry into fewer and larger units, principally by the elimination of the smaller temporary plants. This concentration is shown by the fact that the average value of output per operator has increased from $11,293 in 1895 to $42,723 in 1914."

Since the value of the clay products output in 1895 was $65,409,806 it would indicate, from the above, that there were something like 5,486 clayworking plants doing business at that time. On the same basis, and taking the total valuation of the product of 1914 as given in the Government report ($164,986,983) the number of operating companies at the close of 1914 was less than 4,000.[*] Of course, many of these companies control several plants, for consolidation has had much to do with reducing the number of concerns in the industry.

While the Government report alludes to the "Build with Brick" and "Pave with Brick" movements that attained their maximum in 1914, and says that these must prove of inestimable value in the extension of the use of burned clay in building and road construction, it nevertheless points to the fact that, out of 113 cities reporting building statistics in 1914—that is, statistics that were sufficiently detailed to permit of a division of the figures as affecting frame vs, fire-safe construction—$165,226,250 was expended upon the building of *new* frame structures in 1914, *or thirty per cent of the total amount expended in new building construction.* In the same cities, new brick buildings cost $181,957,682, or a little more than 33⅓ per cent of the total, the balance being stone and cement. Approximately the same proportions were shown between frame alterations and repairs and those done in brick, stone and concrete.

The average cost of new wooden buildings, in these 113 cities was $2,194; of new brick buildings, $8,063; of new stone buildings, $23,944; of new concrete buildings, $30,349; and of steel skeleton buildings, $147,064.

Los Angeles, Cal., reported, as for several years, the largest number of wooden buildings put up during the year. There was a decrease, however—a considerable one—for in 1914 only 6,095 wooden buildings were put up, as against 10,377 in 1913. Detroit, Mich., was second, in 1914, reporting 5,145 new frame buildings, at an average cost of $2,406, a decrease of 1,386 from the number erected in the same city in 1913, but with an increased valuation—$81 per building.

Following Los Angeles and Detroit, came Seattle, Wash.; Minneapolis, Minn.; Cleveland and Toledo, Ohio; Portland, Ore.; Buffalo, N. Y.; San Francisco, Cal., and Milwaukee, Wis. San Francisco, which was ninth in the number, was the leading city in the *cost* of its wooden buildings, displacing Detroit, and reporting the cost at $16,613,300, *an increase of more than nine million dollars over the amount expended on wooden buildings in the same city in* 1913.

Detroit's new wooden buildings cost $12,378,125 in 1914, or $2,803,945 less than 1913. This would indicate that there is something doing in the "Build with Brick" campaign in the "City Where Life is Worth Living." Detroit stood fourth in the cities reporting increases in the value of fire-safe buildings, New York leading, with Boston, Cleveland, Detroit, Minneapolis, Seattle and Washington following in the order named.

The value of the common-brick production was $43,769,524—the lowest since 1900; the value of the paving-brick production was $12,500,866—the highest record so far reached; face-brick had a valuation of $9,289,623—the highest, with the exception of 1909, 1912 and 1913; these years exceeded it by from $200,000 to $500,000.

Enamel brick had a value of $1,075,026—the largest on record, save 1913, which beat 1914 by $150,000.

Fire-brick went to $16,427,547—the worst year since 1911. Drain-tile was normal, with an output valued at $8,522,039—being about equal to the average value of the product in the three years preceding.

Permanent Building Material Exhibit in Frisco

A movement has been started in San Francisco which will lead to the installation of a permanent building material exhibit immediately after the close of the Panama-Pacific International Exposition. Many of the exhibits now shown in the Palace of Mines and Metallurgy and in other buildings at the exposition, will be, it is expected, taken to the new quarters and there installed in a permanent way. The project is in charge of L. Fisher and T. M. Timpson, both of San Francisco. Quarters have been secured in the Newman-Magnin Building, at the corner of O'Farrell and Stockton Streets.

Magnesite and Chrome-Ore Imports

The war's effect on our imports of magnesite and chrome-ore, both so essential to the steel industry, are shown by the following government data, recently issued:

	Imports of Magnesite, Gross Tons	Imports of Chrome Ore, Gross Tons
June, 1914	5,696	3,040
June, 1915	850	80
Year ending June 30, 1913	154,098	49,772
Year ending June 30, 1914	129,238	79,842
Year ending June 30, 1915	56,560	47,051

In the case of magnesite the falling off is 54 per cent for the fiscal year and 85 per cent for June, 1915. The decrease in chrome-ore imports was 41 per cent for the fiscal year and 98 per cent for June.

The amount of crude magnesite produced and sold or treated in the United States in 1914 was 11,293 net tons, valued at $124,223, according to Charles G. Yale and Hoyt S. Gale of the U. S. Geological Survey. This is 17.2 per cent larger than the production in 1913, which was 9932 tons, valued at $77,056. This output comes entirely from six mines in California. The value assigned is computed at the rate of $25 to $30 a ton of ordinary calcined (not ground) magnesite in sacks at San Francisco, a rate about equivalent to $10 to $12 a ton for the raw magnesite at the same point. The importation of magnesite into the United States in 1914 was about 122,000 tons of calcined and 13,000 tons of crude, which with 11,293 tons of raw (equivalent to about 5,000 tons calcined) for the domestic production makes a total equivalent to about 132,000 net tons as calcined magnesite. About 96 per cent, therefore, of the amount used is imported and of this nearly 93 per cent comes from Austria-Hungary and 3 per cent from Greece.—"Iron Age."

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[*] EDITOR'S NOTE: The Government figures are based on the number of plants reporting, and on the valuation of the product of such plants as do report. There is reason to believe that a large number of small plants fail to send in any figures. So, while there certainly were more than 4,000 clayworking plants in operation at the close of 1914, the ratio of concentration is undoubtedly close to the Government figures.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Glazing the Inside of Sewer Pipe

714. *Iowa—We find, in salt-glazing our sewer-pipe, particularly in the smaller sizes and in the shapes, that the glaze does not entirely cover the inside surfaces of the pipe, even where the outside glaze is satisfactory. Is there any way of applying the glaze to the inner surface of the pipe before it is set in the kiln? This way must be other than by dipping, which would, of course, cover the outside of the ware at the same time. The glaze would have to be very inexpensive both in the cost of the ingredients and in preparation, and the process of applying it ought to be sufficiently simple to prevent the running up of a big labor expense.*

The above question was published in the Oct. 19 issue and an answer given. Since then, we have received the following letter from J. E. Minter, General Manager of the Columbus (Ga.) Sewer Pipe Company, who writes:

"I note on page 600 of issue of 19th inst. question 714 Iowa. As glaze secured on outside of pipe is satisfactory I believe the trouble is, the ware is either set too open, or there is not sufficient draft to pull the vapors through. I am inclined to think it is the former. I suggest setting the pipe as close together as possible and then partially covering the openings in the floor on outside of pipe with brickbats or broken rings, by which part of the flue space on outside of pipe will be cut off and in a measure the draft will pull the fire and vapor through the inside of the pipe since it cannot as readily pass, or more readily pass on the outside.

"If the draft area in the floor of a kiln is checked up after the kiln is set it will be found to be considerably more on outside than inside the pipe. Then, owing to small openings and more or less friction in small pipe, the fire and vapor is 'invited' to pass through the kiln on outside of pipe, thus leaving the smaller sizes unglazed on inside.

"I believe, if Iowa will try out a few kilns by obstructing the floor as outlined above and make a careful note as to amount of obstruction in each kiln, he will soon ascertain the right amount of obstruction to use and eliminate his trouble.

"If this is tried out I would be glad to be advised regarding results obtained."

Wants to Build a Pottery Kiln

715. *Philippine Islands—Taking advantage of your Questions and Answers department, I shall be very much obliged if you will kindly help me on the following points: I want to build a pottery kiln of moderate size, but as the kind of fuel to be used is wood, will you kindly advise me: 1. As to which is the best type of kiln I should adopt, whether the up-draft or the down-draft and whether round or rectangular. 2. As to the proper number of fireplaces and their size, in proportion to the size of the kiln. 3. As to the proper size of the stack. 4. As to the proper use of dampers.*

In burning pottery in saggers, either a round up-draft or down-draft kiln may be used. The former is preferable for wood fuel, and also from the economy standpoint—this irrespective of the kind of fuel.

For burning whiteware with wood fuel, use a kiln that is not more than twenty feet, inside diameter. It should have ten fire-boxes, with flat grates, and the grate surface should be at least forty inches by forty inches. The chimney or stack should be twenty feet high from the floor of the kiln and have an inside diameter of twenty-four inches. The damper control will be no different, using wood, than in using coal. In fact there should be no difference in the kiln construction, save that a larger fire-box is required to accommodate the larger volume of fuel.

Volume XIII of the Transaction of the American Ceramic Society contains a paper by E. T. Montgomery, E. M. (in Cer.) of Alfred, N. Y., which gives the design and construction of a down-draft kiln that would be suitable for the work which our subscriber has in mind.

On page 385 of the same volume of the Transactions will be found an excellent drawing of a twelve foot potters' up-draft kiln which might, however, more nearly meet with his requirements.

The fireboxes in either kiln would not have to be materially altered to allow for the burning of wood fuel, except to see that they were built sufficiently deep to take the standard length of wood as it is cut for fuel in the part of the world where this subscriber is operating. It might, however, be necessary to make the fire-box mouths a little larger than they are shown in the drawings.

Valuation of Common Brick Plant

717. *Nebraska—Please advise what is the approximate value of a common-brick plant, based on its daily output.*

You have omitted one very important factor in your question, which is the profit per unit or per thousand of that daily output. With that in hand it would be easy to approximate the value of the plant,—without it, any approximation would be worthless. A plant with, say, 100,000 daily output might make $1 per M., or an average of $100 per day, three hundred days a year. That would be an annual profit of $30,000, which would indicate a valuation of something more than $300,000.

A plant twice the size, and with twice the physical valuation, but showing a profit of only 50c per M., or $100 per day, would not be worth one cent more, unless it could be seen that the smaller margin of profit was due to one or more mistakes in management, some or all of which could be rectified by a new owner.

The real value of any property is the amount it would bring at a sale made under reasonably favorable circumstances or an amount calculated on the gross profit of the past five or more years, or a combination of the two. In cases where it can be shown that the only reason the plant has made so little money, or none at all, is the poor management of the present holders, some allowances may be made on that account. This is not, as a rule, given much prominence by the men who are in control.

Leather Belts in Brick Plants

716. *Indiana—Having only recently become identified with the brick industry, I am anxious to know why there are so few leather belts used in brick plants. What kind of belting is most economical and most satisfactory in brickmaking plants and why?*

Perhaps the primary reason for the limited amount of leather belting that is used in the clay industry is the high initial cost. In selecting belting, as in the selection of any other commodity, the first cost should be considered in conjunction with the quantity and quality of the service that will be delivered during the life of a belt. It is only fair to believe that manufacturers of clay products have looked at this in the proper light and judged that the cost of leather belting is prohibitive, since it does not promise either better or longer service than that given by other belt types. The conditions existing in clayworking plants are such that they may be said to militate against the longevity of leather, since the belting is expressed to moisture, steam, dripping oil and gritty dust.

For obvious reasons we would not care to discuss the question of comparative wearing quality or service of any particular type. The advertising pages of this magazine will give you a great deal of information and it might be well for you to write these advertisers for particulars.

Questions and Answers for Power Plant Owners

The following questions are asked by a reader of the "Practical Engineer" and answered in that magazine:

What is a valve spindle?

The valve spindle is only found on certain types of valves, and is practically the same as a valve stem. It is used simply to guide the valve, so that it will rise and fall without tipping, as the tipping might get it stuck in the valve chamber, or it might let it come back on to the seat at an angle, so that it would not seat tight.

What is the combustion chamber of a boiler and what is its function?

The combustion chamber in a boiler is a space beyond the firebox, provided to give time for completing the burning of the gases. As they come from the firebox, these gases usually have a good deal of carbon monoxide and free oxygen, and if these are thoroly mixed and allowed a little time, at high temperture, before they come in contact with the boiler tubes, the carbon monoxide will be burned to carbon dioxide, giving up three times as much heat as it would if the combustion were not complete.

What danger exists between pressure and lift of a safety valve? Why?

In a pop safety valve, the greater the pressure before the valve blows, the higher will be the lift. We do not see that there is any danger in this relation, except that in a pop safety valve, if the spring be made too short or wound too close, there may not be opportunity for the valve to lift as high as it should; but this condition would never exist in any commercial form of safety valve.

What does the indicator card show as it comes from the indicator?

The indicator card as it comes from the indicator shows the relation of the back pressure line to the atmospheric line, and by its shape indicates the valve action. The area of the diagram shows, also, in a general way, how much load the engine is carrying, but, of course, this cannot be found accurately without laying out the card and finding the mean effective pressure.

What is an exhaust pipe to a boiler? Where is it? What is meant by it?

We have never known of any pipe from a boiler being called the "exhaust" pipe. The steam pipe comes from the top of the boiler, and carries the steam away for whatever use may be made of it. The blowoff pipe comes from the lowest point in the boiler, and is used for carrying out the dirty water and deposits from the bottom of the boiler. In a return tubular boiler, this usually comes from the bottom of the shell near the back end, which is set lower than the front end. In a water-tube boiler, it comes from the mud drum, which is the lowest point of the boiler at the back end, provided especially to permit dirty and foreign matter to settle out.

How much space is allowed over the bridge wall of a return tubular boiler?

The space above the bridge wall depends entirely on the size of the boiler. The common rule is, to make the area above the bridge wall one-seventh of the grate surface.

What effect would the breaking of a governor spring have on an engine?

If the centrifugal spring of a governor breaks, the governor will fly to the extreme outer position, and in most modern engines, this will mean that the steam will be cut off entirely, so that the engine will stop.

How is the required tube or flue area in a boiler determined?

The area for the flues, or tubes, in a boiler is usually made one-eighth the grate area.

The Salesmanager

A Department Devoted to the Marketing of Burned Clay Products—Particularly Those That Enter Into Building and Road Construction, Sewers and Farm Drainage

CONTRIBUTIONS TO THIS DEPARTMENT are solicited and will be printed with or without the name of the contributor, as he may wish. A year's subscription to this magazine or a check for two dollars will be sent for each item that is accepted.

EVERY BRICK SALESMAN knows that a good brick exhibit is a business getter—that is, every salesman of face-brick. The day has gone when the sole purpose of an exhibit-room was to impress the would-be customer with the importance of the man in the private office. The exhibit-room has taken wings, and in its place we have the salesroom—a place where sales are made.

This being the case the thought comes to even the most inactive mind that since the room is a salesman it is necessary that it have one of the first requisites of selling ability, which is to be up-to-date—spick and span, with a "smiling morning face."

Bringing the brick exhibit up-to-date once a year (or once in two years—or five—as is often done) is poor economy. Manufacturers are keeping abreast of the times and bringing out new shades, new textures, and new mixtures of both. They don't wait for the first of the year—they bring out something new the first of every month—or oftener.

If your exhibit does not show the "latest" you are like a shop that shows only last year's styles—and you know the kind of trade that sort of shop caters to.

Granted that it is a hard thing to have to tear out and rebuild brick panels, sometimes laid in mortar—it is a part of the game. It pays, and pays well. If it is worth while to have a brick exhibit at all, it is worth while keeping it as it should be, and showing the "last word" in that class of material.

There may be a few old mossbacks who prefer to deal with an old fashioned concern, just as there are some who like to do business with a banker with tobacco stains on his shirt front—but they aren't going to last very long, and the new ones are going to deal with the man whose salesroom is indicative of his own progressive spirit.

How the Motor Car Helps

One of the most successful brick salesmen in the country recently said that his efficiency would be greatly reduced if he were compelled to get along without the aid of an automobile.

"How does it figure?" he repeated. "Well, it has a part in almost every face-brick transaction. Suppose I learn that an owner who lives in a suburb several miles from the heart of the city is thinking of building, I telephone for the purpose of making an appointment, and suggest that the prospective builder would like to see our display. If that meets with the approval of the latter I then offer to come out in the car and bring the owner down to the salesroom.

"Nearly everybody likes to ride in an automobile, especially those who don't happen to own cars, and the prospect is generally in a pleasant frame of mind by the time the trip down town is completed. So it is easier to make a good impression that it might have otherwise been. Besides you have an opportunity to do a little of your preliminary educational work on the trip in, and when the prospect sees the brick his or her mind has been made 'receptive' by what has already been said.

"Another thing, a customer may have seen a house the effect of which he admired, but is unable to say just what kind of brick was used. It is the simplest matter in the world to get in the automobile and drive to that very house. In case we did not sell the brick we are then given an idea as to just what the customer wants, and are in a position to meet his requirements with something in our own line.

"Or we may find it desirable, in addition to showing the displays of brick in our exhibit, to take the customer all over town to view completed jobs in which our material was used. A panel gives a good idea of how brickwork is going to look, but many people are always better satisfied if they can see it in a finished residence or other building.

"Yes, the automobile certainly saves time, and enables one to do things in going after business that have an important effect on the results."

Service to the Architect

The architect, whose good will and co-operation are so necessary in carrying on a campaign for the sale of face-brick, is not an easy subject to generalize about, for the reason that there are architects and architects. Some of them insist on their professional codes being strictly observed, and refuse to allow the client to be solicited by the brick man. Others have no objection to this, provided their consent is gained in advance. Other architects are at the same time builders and contractors, and are frankly business men who can be handled without gloves on ordinary business lines.

Obviously the *modus operandi* with reference to all of these different types must be varied to suit individual conditions. But it may be safely said that the underlying idea in every instance should be not so much the desire of the brick man to sell something, as his willingness to render service.

Of course, his own self-interest is necessarily present, and that is understood, but the basis on which he should approach the architect is that he is in a position to render valuable service to the latter, by means of showing him the latest and best products of the manufacturers, and keeping him posted regarding developments in the field of brickmaking.

The majority of live architects are willing to concede the ability of the dealer to give them information of importance, and to come regularly, and as a matter of course to his offices, often bringing their clients with them, to see what is to be seen in the way of brick displays, and suggestions on mortar, joints and bonding.

There are others who refuse to deal with the brick man in any way, and whose ideas regarding the character of the material to be used are not known until the specifications are ready for the contractors. Such men, obviously, are hard to deal with, and it is difficult to get on the inside or treat with them regarding any jobs which they may have in process.

But very frequently an architect displays his ignorance of brick conditions, and makes a brick job unnecessarily expensive by not taking advantage of the service available from dealers. In one case an architect, acting on his own initiative, dug up a sample of brick which was not made in his section of the country, and specified it for an important public building job. The figures quoted were so high that it was decided to substitute stone.

If this architect had consulted the brick men of his city, and shown them what he wanted in the way of a brick, one could have been supplied at a figure which would have held the bids within reasonable limits. Thus the refusal of the designer to co-operate with the brick men, he not only deprived them of an important piece of business, but was prevented from carrying out some otherwise excellent ideas in brick construction.

The Value of Co-operation

Often brick dealers handle no fancy tile, and consequently do not figure on jobs involving the use of this material for mantels, halls, etc. On the other hand, tile is regularly handled in connection with mantels and fireplace accessories, and dealers in the latter line have made a special study of it.

It is good business for men in allied but non-conflicting lines, as in this case, to get together for their mutual profit. The brick dealer can refer tile business to the expert in the latter field, and the fireplace man can give the brick dealer tips on business in his line. Nobody can lose by this arrangement, but both parties to the agreement, tacit or expressed, will benefit.

A well-known brick salesman said recently that he had found a plan of this kind to be working out very well. Often people who came in to look at his display of face-brick would inquire about tile for their fireplaces, and he gives his friend in that line a boost. On the other hand, he conceded that he had learned in a good many cases of important prospects for face-brick sales through the tile man.

It is true that there is a certain amount of competition involved in a case of this kind, for brick fireplaces and mantels are frequently used. But ordinarily an owner has rather definite ideas on the subject of the materials he desires to use, and hence co-operation, as in the instance referred to, can be made to produce results without much difficulty.

The Hard Man to Sell

"The hardest man to make any impression on," said a clever brick salesman not long ago, "is the chap who is absolutely ignorant of the subject.

"Forrest Crissey hit the nail on the head in his recent article in 'The Saturday Evening Post' when he declared that expert buyers are needed as much as efficient salesmen.

"And it would help the salesman immensely if he could always meet, as prospective customers, people who have been educated on the subject of brick, and who do not need to have the fundamentals explained.

"The prospect who is 'up' on the subject of brick and brick building can appreciate points scored by the salesman, whereas the buyer who is ignorant of the subject is very hard to impress. He is likely to be confused by seeing a number of different exhibits, and to find it difficult to determine just what he does want.

"The manufacturers are doing a lot in the direction of educating brick buyers by publications in which the proper—nay, expert—use of brick is effectively set forth, and the more this sort of work is done the easier the job of the salesman will be. At present he must be a kind of brick evangel, as well as just a plain salesman, and much of his work is necessarily preliminary and educational, instead of being devoted to the main issue of getting the signature on the dotted line."

Have a Complete Line

Selling brick successfully, and especially fine face-brick, demands having a complete line to show.

It must be complete and representative, not only in colors and textures, but in price. The dealer must be able to supply the demand, no matter along what line the demand happens to flow. He cannot afford to take the ground that only one grade of brick is worth while, but he must be the spokesman for brick as a whole, and be ready to give the customer whatever he wants.

Creating a line is consequently a difficult task. The products of different manufacturers must be so carefully selected that they will dovetail and not conflict. At the same time they must cover the whole field, so that if the architect or owner comes in and says he want a brown brick at $15, or a red at $23, or vice-versa, the dealer will be able to indicate something that meets those particular specifications.

Selling "Seconds"

When you tell a customer that you can supply a "good second" of some brick at a price that will compete with the "first" offered by a competitor, you are making a market for seconds. If you will stop to think, for even a little moment, you will also see that you are encouraging the man at the plant to make seconds—or, perhaps, not to be careful to avoid them.

Some plants are "sold up" on No. 2s and overstocked on firsts. When a kiln comes in wrong it is very easy to get rid of it on some standing order for No. 2s—and not nearly so much attention is given to the conditions that made the off-burn as there would be if the plant were oversold on firsts, and overstocked on seconds.

Think it over, and *see how much you are doing to keep the price of face-brick down to bed-rock.*

The Salesmanager

is a new department, designed to help the man whose problem is the disposal of the plant product at a profitable price. This issue is devoted to the sale of face-brick. Subsequent issues will deal with other clay wares. You can direct the trend of the department by contributing to it.

Help Us to Make it Helpful to You!

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Horse Powers Transmitted by Manila Rope Drives at Various Speeds

The following table gives the horse powers transmitted by manila rope drives with rope of a given diameter when traveling at various speeds; also the tension weight in pounds required.

In purchasing sheaves for this type of drive, it should be borne in mind that their diameter should not be less than thirty diameters of the rope, both for the driving and driven sheaves.

Lengths of rope splices should be from sixty to eighty times the diameter of the rope.

Diameter of Rope Inches	1000 feet per minute		1500 feet per minute		2000 feet per minute		2500 feet per minute		3000 feet per minute	
	H.-P.	Tension Weights pounds	H.-P.	Tension Weights pounds	H.-P.	Tension Weights pounds	H.-P.	Tension Weights pounds	H.-P.	Tension Weights pounds
⅝	2.25	100	3.37	100	4.50	100	5.37	100	6.25	75
¾	2.75	100	4.12	100	5.50	100	6.62	100	7.75	100
⅞	4.25	175	6.25	175	8.25	175	10.00	175	11.75	150
1	5.00	200	7.50	200	10.00	200	12.00	200	14.00	175
1⅛	7.00	275	10.25	275	13.50	275	16.25	250	19.00	250
1¼	8.00	375	11.75	325	15.50	300	18.75	300	22.00	300
1⅜	10.25	400	15.12	400	20.00	400	24.12	375	28.25	375
1½	11.50	450	16.75	450	22.00	450	26.75	425	31.50	425
1⅝	14.25	575	21.00	550	27.75	550	33.62	525	39.50	525
1¾	17.00	675	25.25	675	33.50	650	40.37	650	47.25	625
2	20.50	800	30.25	800	40.00	800	48.25	775	56.50	750

Diameter of Rope Inches	3500 feet per minute		4000 feet per minute		4500 feet per minute		5000 feet per minute	
	H.-P.	Tension Weight pounds	H.-P.	Tension Weight pounds	H.-P.	Tension Weight pounds	H.-P.	Tension Weight pounds
⅝	6.87	75	7.50	75	8.00	75	8.50	75
¾	8.75	100	9.75	100	10.25	100	10.75	100
⅞	13.12	150	14.50	150	15.25	150	16.00	125
1	15.62	175	17.25	175	18.12	150	19.00	150
1⅛	21.25	250	23.50	225	24.75	225	26.00	200
1¼	24.50	275	27.00	275	28.25	250	29.50	250
1⅜	31.50	350	34.75	350	36.62	325	38.50	300
1½	35.25	400	39.00	400	41.25	375	43.50	350
1⅝	44.25	500	49.00	500	52.25	475	55.50	450
1¾	52.75	600	58.25	575	61.50	550	64.75	525
2	62.87	700	69.25	675	73.37	650	77.50	625

Where There Is a Complete Understanding

Every employe on the plant should be made to under- and that the management intends to allow him to earn high a wage as his capabilities permit. Many of the fficulties that attend the handling of the wage problem ise from a lack of this understanding.

The foreman or superintendent who can convince his men that a piece-work schedule is *based on the ability of the average workman,* and that an average workman can make a fair day's wage at the schedule in force, shows the man has exceptional ability, or concentration, or willingness to work hard and fast, *that he can make more than a fair day's wage* without killing himself.

At the same time, he will convince the idlers and inefficient men that this particular calling is one for which they are unfit.

The basis is the fairness of the wage principle. The application is the power of the superintendent to make every man believe in that fairness.

Rolling Sheds on Country Brickyard Kilns

Mechanical ingenuity and cost reducing appliances do not alone find a place in the large clay plant where the capacity is rated in thousands per day, and the number of men employed and capital invested are very large. Big business usually puts a premium upon ideas that tend to reduce the cost of the finished product, whether it be a direct saving in material or time, or a saving in the amount of capital necessary to carry on the business. In this case, it happens to be the latter, and is found near Sumter, S. C., in a country brickyard.

The accompanying illustration shows a number of small scove kilns at the Sumter Brick Works. It will be noted that there are only two sheds or coverings for kilns in the picture, while two kilns remain apparently uncovered. This, however, is not the case, as the sheds are movable, being rolled from one kiln to the other over thirty-pound rails, thus saving considerable in the number and cost of sheds necessary at this yard. The sheds are in three sections, and when grouped together, cover a large area. The roof is constructed of corrugated iron laid over frame rafters.

Making Brighter Glazes

A correspondent who has been compelled to work with a very porous body and found that he could never get it to yield a bright, glossy surface when glazed, has discovered that the dullness was chiefly due to the porosity of the material. The glaze was absorbed so completely that only enough was left on the surface to produce a dull finish. By so working that the body was made rather denser—in this instance by firing it at a rather higher temperature—an entirely satisfactory series of glazes was produced.—"Brick and Pottery Trades Journal."

The Value of the Draft Gauge

After a fireman becomes familiar with the indications of a draft gauge connected with his furnace, he can learn a good deal about the condition of his fire by watching the gauge. Thus, if the draft over the fire is low when the damper is full open, he may be sure that there are holes in the fire. If the draft is high it is likely that dense clinkers have accumulated in the grate.

Thus, a draft gauge is not only a valuable instrument by which the supply of air may be adjusted and the rate of combustion made to correspond to the demand for steam, but it can, and does indicate the condition of the fire.

Some power-plant owners may not be willing to provide draft gauges for boilers, thinking that the draft-gauge conditions are too complicated and that the fireman will not learn to use them; or, it may be that they think the fireman can get along without draft gauges, having done so in the past.

This is poor reasoning. Firemen have learned to read the pressure gauge and the water column, and how to adjust the rate of feeding the water to the demand for steam. They will surely learn (if given a chance) the way to adjust the air supply and the rate of combustion—and this chance is by way of the draft gauge.—Adapted from "The Isolated Plant."

Who Am I?

I am more powerful than the combined armies of the world.

I have destroyed more men than all the wars of the world.

I am more deadly than bullets, and I have wrecked more homes than the mightiest of siege guns.

I steal, in the United States alone, over $300,000,000 each year.

I spare no one, and I find my victims among rich and poor alike; the young and old; the strong and weak. widows and orphans know me.

I loom up to such proportions that I cast my shadow over every field of labor, from the turning of the grindstone to the moving of every railroad train.

I massacre thousands upon thousands of wage earners in a year.

I lurk in unseen places, and do most of my work silently. You are warned against me, but you heed not.

I am relentless, I am everywhere; in the home, on the streets, in the factory, at railroad crossings, and on the sea.

I bring sickness, degradation and death, and yet few seek to avoid me.

I destroy, crush or maim; I give nothing, but take all.

I am your worst enemy.

I AM CARELESSNESS.

Lighting Black Powder Time Fuse

The following method of lighting a single black powder time fuse is suggested by the United States Bureau of Mines as being more efficient than the old method of splitting the end of the fuse. The method is adapted for use when only one piece is to be lighted; it is not applicable when several pieces are to be lighted, as the time interval between ignition would be too long.

A safety match is held against the powder core at the end of the fuse and the match box drawn across the match, causing the match and powder core to inflame immediately. It will be noted that this is just the reverse of the usual way of lighting a match—drawing the match across the box.

In case safety matches are not at hand, the ordinary household match can be used by placing one match against the powder core and then lighting another and quickly touching it to the first one.

It is believed that the method outlined, which originated with W. C. Cope, of the explosives chemical laboratory of the Bureau in Pittsburgh, as the result of experience obtained in the igniting of hundreds of pieces of black-powder fuse, will be helpful in quarrying and other outside work. It has the advantage of cheapness, as no fuse lighters are required.—"Rock Products."

Machinery and Equipment

Descriptions of Machinery, Appliances and Accessories That Make for Efficiency in Clayworking Plants. Written by the Men Who Best Understand Them—The Men Who Have Them for Sale

DID YOUR OWN MECHANICAL ENGINEER ever tell you that cast tooth gears waste in power many times their first cost, and many more times the difference between their first cost and the first cost of machine-cut gears?

The efficiency of cast-tooth spur gearing varies between 60 and 80 per cent, depending upon the effects of shrinkage and the accuracy of the molding. The efficiency of cut spurs varies between 95 and 98 per cent, depending upon the accuracy of the machine work.

Cut teeth are evenly spaced and of even thickness, and the outside diameter of the gear is a true circle, concentric with the bore, which cannot be accomplished in *any* unmachined casting owing to shrinkage.

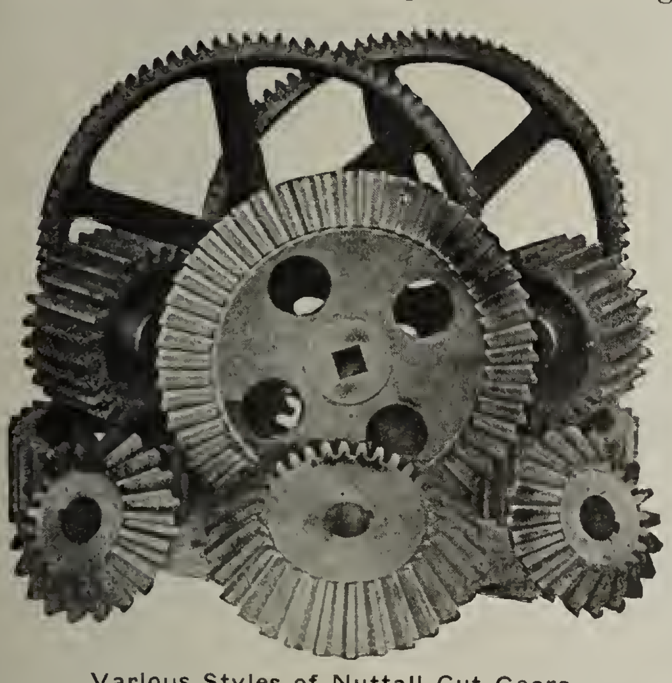
No filing or allowances for uneven teeth or spacing are necessary in installing cut gears, as the teeth mesh truly, with the gears on proper centers, consequently there is minimum labor in mounting, minimum backlash and vibration in operating, no possibility of breaking teeth due to concentration of load on high spots, and no possibility of breaking gears, shafts or bearings due to the sudden strains caused by eccentricity. Cut teeth are engaged for their entire length, insuring even distribution of load and wear.

Assume for a basis of comparing ultimate cost, a cast-tooth gear of highest efficiency, 80 per cent, worth $25, and transmitting power from a 100 h. p. motor, a cut gear of lowest efficiency, 95 per cent, worth $37.50 and working under identical conditions, and the cost of power as six cents per horsepower hour.

At the end of a year, 300 ten hour days, each equipment has cost for power $1,800:

The cast tooth gear has transmitted 80% of the power delivered to it, a friction loss of 20%, or	$360
The cut gear has transmitted 95% and lost in its own friction 5%, or	90
Saving in favor of cut gear	$250

It has cost $250—ten times the price of the cast gear, to save the difference in first cost, $12.50. It has cost twenty times the amount saved.



Various Styles of Nuttall Cut Gears

Is there a single good reason for using cast tooth gears?

This comparison is based upon the actual operating experience of a man who has used both kinds of gears, and this is what he says about another feature of Nuttall cut gears, and their superiority in hard service:

"The cut gears furnished our Johnetta Sewer Pipe Plant and Brick Works were placed on our brick machinery and pug-mill four months ago, and are constantly in use. They are running smoothly, and show no wear. We regard them as superior to any cast gears, and recommend them for hard usage anywhere."

Link-Belt Silent Chain
The Ideal Drive for
Clay Working Machinery

Flexible as a Belt · Positive as a Gear
More Efficient than either

LINK-BELT COMPANY
PHILADELPHIA CHICAGO INDIANAPOLIS

Bulletin No. 91

A Book Every Clayworker Should Have

The R. D. Nuttall Company of Pittsburgh, Pa., will give you comparative costs, and guarantee the cut-tooth gears to save their cost many times over.

The Ideal Electric Drive

The principal objection to electric drive for clayworking plants in the past has been the difficulty in eliminating constant and severe shocks to the motors. Even with a long leather belt drive there is the trouble caused by slipping added to the large amount of floor space wasted.

A large number of the more progressive manufacturers of clay products have, however, overcome these obstacles by the adoption of the flexible chain drive. This method of power transmission passed the experimental stage years ago and one of the best evidences of its efficiency in clay plants is the fact that several of these factories in the Ohio district, where they have used the Link-Belt Silent Chains for a number of years, have recently placed orders for additional equipment.

The interest of clay products manufacturers in the Link-Belt drive has become so great that this company has been forced to issue a special booklet for the clayworking field. It contains a wealth of good information dealing with the actual use of the Link-Belt Silent Chain in brick and other clayworking plants, including facts, figures and photos.

A copy of this booklet will be sent free to any clayworker who will write to the Link-Belt Company, 39th street and Stewart avenue, Chicago, Ill.

Cutting Dryer Costs

Every wideawake clayworker is appreciative of the efforts being made by the manufacturers of various equipment, to introduce new machines and methods that will help to reduce the cost of manufacturing of clay products.

One of the departments of a clayworking plant that has presented a rich field for inventive genius, is the drier. It is necessary to dry safely, to prevent cracks and checking, and now in these days of competition, it is also necessary to dry cheaply and speedily.

Interior View of "Proctor" System Dryer

The "Proctor" dryer combines all of these points; it dries safely, quickly and cheaply. It is not an adaptation of another form of the present clay products dryer, but it is in itself an entirely new form and process, that applies in a new and novel way the old and known principles of drying.

The "Proctor" system is not an untried theory, but is in fact already a tried success; on one plant manufacturing electric conduit and hollow-ware, the safe drying time is from 90 to 135 minutes, the same ware formerly requiring from 72 to 96 hours. On other plants (just as well known as the above plant) the brick are dried in half the time and with a big reduction in labor cost.

It seems unbelievable that when formerly we reckoned drying time in hours and days, that the same ware can now be dried commercially in minutes, at less expense and with safety.

The "Proctor" dryer is designed and will be installed by the Philadelphia Textile Machinery Company, of Philadelphia, Pa. Additional informtion will be sent to you on request.

"Would Not Be Without It"

The value of any high-grade scientific instrument should be judged not by its accuracy at the time of installation but by its ability to continuously record accurately after two or more years of service.

A pyrometer, to give this class of continuous service, must be of high-grade design; it must be rugged; it must have compensating features that eliminate errors, and it must be equipped with the correct elements corresponding with the degree of heat that is to be measured.

The Beighlee Pyrometer is specifically adapted to clay-plant service, having in its construction and design many features heretofore unknown that tend to give both accurate and long service under difficult conditions.

For more than two years The Newburgh Brick & Clay Company, Cleveland, Ohio, has used the Beighlee Pyrometer, and has found it to be signally reliable. On this plant it has withstood the acid test—the superintendent says he would not do without it.

J. R. Zmunt, secretary of the Newburgh Brick & Clay Company, referring to this installation, writes: "In reply to your letter beg to state that we installed the Beighlee Recording and Indicating Pyrometer System two years ago last April, and the same has been in continuous operation at our plant.

"We also wish to say that the cost of maintenance of this system has been practically nominal, and the results obtained have been most gratifying, as our burners are enabled to keep a check on their work, and thus know what they are doing. It affords our superintendent an opportunity to check up the burners and place the responsibility where it belongs.

"We have also been enabled to obtain a higher grade of product; especially is this true as to our paving block, which is the principal product of our factory.

Beighlee Pyrometer

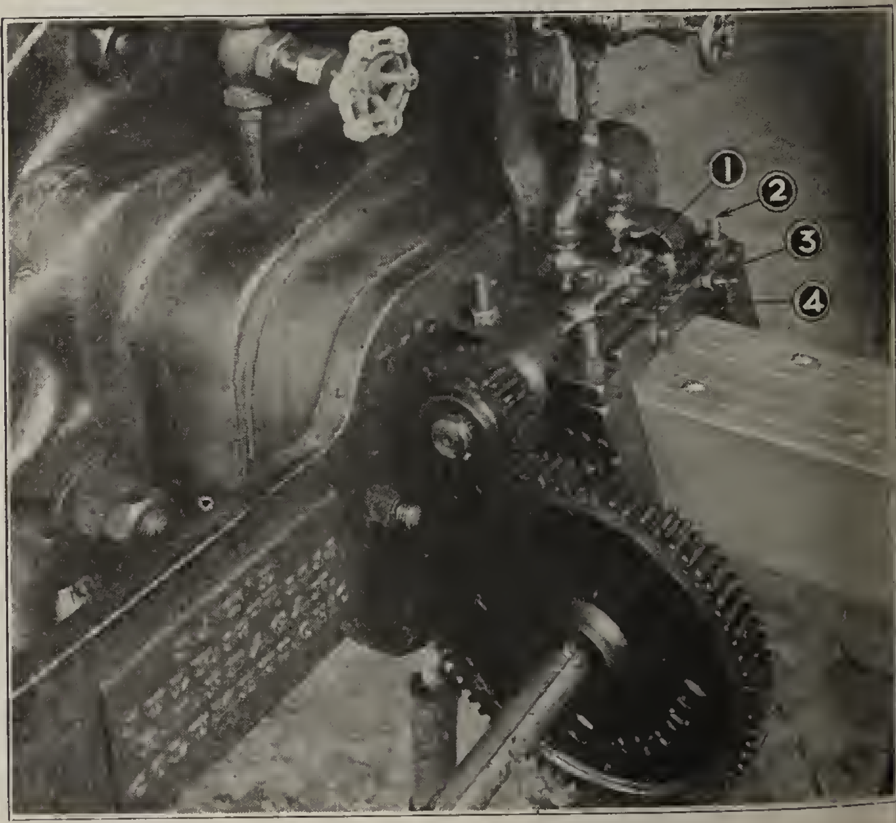
"Our superintendent says that this system has been of untold value to him, and he would not be without it."

Complete information from the Beighlee Electric Co Cleveland, Ohio, upon request.

The End-Cut Paver

A new process for the manufacture of lug and grooved paving-brick, without the use of heavy-costly machines, has been placed on the market by D. E. Reagan. The pavers made are end-cut, and the lugs and grooves are formed in the Reagan roller die.

Mr. Reagan gives the following points of merit for the die and its product: Separating lugs (any shape desired); interlocking groove for grout; ideal square corners (round if



wanted); the most perfect paver made complete in one continuous operation in the Reagan patent integral roller die; can be readily attached to any stiff-mud brick machine; is sprocket driven from table to cutter; every brick and lug and groove perfectly formed within die; no deforming of clay after leaving die; no repress; no repressing; no labor for repressing; no oil for repressing; less chance for lamination than any other method; increased production at reduced cost; each brick has two perfect faces; can be used for face-brick or backing up; no further excuse for culls on yard.

Full particulars with reference to machine and license can be obtained by addressing D. E. Reagan, 175 S. High Street, Columbus, Ohio.

Manufacturers Equipment Company's Exhibit

The most interesting and attractive exhibit, as well as the best attended, at the recent Dayton, Ohio, convention of the National Paving Brick Manufacturers' Association, was that of the Manufacturers Equipment Company of that city. Their room on the third floor was well filled with paving-brick manufacturers all day long and Messrs. Schroll, Justice, Sachs and Underwood were kept busy explaining to the eager inquirers the significance of the various items composing the exhibit.

Several charts were shown giving facts and figures relative to the comparative costs of burning brick by direct coal fire and by the Underwood Producer Gas System. The most significant of these was one giving a record burn of a kiln containing 75,000 building-brick, at the plant of the U. S. Brick Co., Tell City, Ind., which is reproduced here:

Coal Direct Fired

Total time burning	168 hours
Coal consumption, 45 tons@$1.55	$ 69.75
Coal delivery to kiln, 45 tons@15c	6.75
Labor, 336 hours@25c	84.00
Total cost	$160.50
Cost per 1,000 brick	2.14

Underwood Producer Gas System

Total time burning	73½ hours
Coal consumption, 25.9 tons@$1.55	$ 40.14
Coal delivery to producer, 25.9 tons@1c	.26
Labor, 147 hours@25c	36.75
Total cost	$ 77.15
Cost per 1,000 brick	1.03

Result: Saving of $1.11 per 1,000 brick, or $83.35 per kiln.

In addition to this there was a large water-colored painting showing the installation of the Underwood System in detail as applied to rectangular and round down-draft kilns, illustrating the simplicity of the actual installation to any established kilns.

A part of the exhibit that attracted peculiar interest was the original heat record as made by John N. Gregori at a kiln where the Underwood System is in use, and which showed to the satisfaction of every visitor the absolute heat control that is possible where this system is employed.

Actual samples of high-grade mat or rough-texture face-brick burned at the U. S. Brick Company plant were also exhibited, showing the possibility of getting any desired color where the Underwood System is used. There were also samples of paving-block burned by the same system at the plant of the Puritan Brick Company, Hamden, Ohio, which demonstrated absolute uniformity of the burn from the top to the bottom of the kiln. Each of these block had a slip pasted on one end as shown in the accompanying photograph, indicating the course from which the block was taken in the kiln, each of these slips being signed by the superintendent of the Hamden plant. This tangible evidence of the excellent results obtained by the use of the Underwood Producer Gas System made a profound impression on every brick man who visited the exhibit.

There was also a very keen interest taken in the photographs showing the installation of the Justice Metallic Radiation Dryer, consisting of twenty-two tracks, on the plant of the National Fireproofing Company, at Haydenville, Ohio; also brown prints showing the details of installation.

Space here will not permit of a more extended reference to this admirable exhibit, but great credit is due the Manufacturers Equipment Company, of Dayton, Ohio, for their efforts to educate the brick men to equipment that has helped so materially to reduce brick manufacturing costs. They will be glad to send photographs and further details regarding these matters to any one interested.

Samples Taken from Kiln at Plant of Puritan Brick Company

Blasting in the Pit

The majority of the clay plants are using explosives in the clay pit to successfully lessen both the labor and expense. A few skeptics still exist, however, and to convince these people the Du Pont Company is exerting tremendous efforts.

The following excerpts from the letter of Lawrence C. Longstreet, a professional blaster of North Carolina, may be of interest:

"The place where I tried blasting down clay for a brick yard had been worked for some years by old-time pick and shovel method. There was a large shallow pit, irregular in shape with a perpendicular face at one end. I put down a line of holes three feet deep and six feet back from this face, loading each hole with one and one-half cartridges of Red Cross Extra 40 per cent dynamite. The charges were connected up to a blasting machine circuit and fired electrically. Two of these shots kept the brick yard men very busy for two days taking out the loose clay.

"I am convinced that if any brick yard man will try this method he will always have a blasting machine and dynamite on hand thereafter, because it cuts labor cost almost in two to get down the clay in this way."

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FOR HARD SERVICE
Literature on Request
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Our business is diagnosing and remedying
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of manufacturing for the Clayworker. If you are experiencing loss in any department, mechanical, drying or burning, consult
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We personally do the work.

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Approved Systems from $10.00 up
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Excessive Freight Rates
The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.
Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.
These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.
IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

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Pure, brilliant in tone, economical in use, absolutely reliable and a permanent guarantee against fading and washing. Why not insist on having them?
Red, Brown, Buff, Purple and Black
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FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
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Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff Strongest and most durable
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U. S. A.
Correspondence solicited

The Semi-Monthly Trade Review

WHEN staid and conservative business men resort to a "Halloween Party" to express their feelings regarding existing conditions of industry and finance, it is high time for the pessimist to make a hasty departure for the woods.

The "Halloween Party" was given by the Chicago Real Estate Board a few days ago at the local Press Club, and was a complete success, there being nearly two hundred present. Nothing of a serious character was permitted at the festivities, the occasion being one for "hearty congratulations on the upward turn of business conditions, which means the elimination of 'Mr. Gloom' and the return of 'Mr. Joy,'" according to the announcement sent to the members of the board.

The feeling which prompted the above celebration is permeating the entire nation. With very few exceptions, each section of the country has some distinct cause for congratulation. In the East, textile mills and manufacturing establishments of all other kinds are busy, while the boom in iron and steel continues to grow. In the South, higher cotton prices and a good crop of grains and other farm products have given a decided impetus to business. In the West, an unusually successful agricultural season is the feature, with manufacturing and building in a healthy condition. Business interests almost everywhere, having perceived that the commercial tide is rising, are regulating their contracts, investments and plans for the future with a degree of confidence heretofore lacking.

A tremendous growth in American export trade, as well as a marked falling off in imports, is indicated in the monthly statement on exports and imports covering September, made public on October 27 by the Department of Commerce. Exports for the month of September totaled $97,613,072 as against $75,037,627 for the same month last year. For the nine months ending September 30 there was an increase of practically $400,000,000 in the value of the exports. The total value this year was $1,034,502,456 as against $616,289,563 in 1914.

Imports for the eight months ending on August 31 showed a decline of $120,000,000, the total being $1,150,858,760 as compared with $1,270,361,263 for last year. From these figures it may readily be seen how great is the foreign demand for American-made goods and what an opportunity is presented to domestic manufacturers for the replacing of goods formerly purchased abroad with those "Made in U. S. A."

This enormous flow of exports has brought a corresponding flood of gold to this country. In fact, never before has gold accumulated here in such large quantities, an additional $25,000,000 having arrived from London by way of Canada during the past two weeks. While previous shipments of the precious metal have stirred the public imagination, they are now becoming common and attract less attention than formerly. Altogether about $85,000,000 has been received in New York from the British capital on recent movements, making the inflow from all quarters this year approximately $300,000,000 and apparently the end is not yet in sight.

Obviously, New York does not require the gold, since supplies are already excessive, but the abnormal state of foreign exchanges sends the metal to the point where it is least needed. Even the half-billion Anglo-French credit has not strengthened Sterling rates as expected and, with this nation's oversea commerce developing at a phenomenal rate, continued importations of gold, as well as of securities, are necessary to maintain the equilibrium of the market, and there is even talk of making another loan to the Allies. As an illustration of the extent of the foreign purchases of war supplies and other commodities, this country's balance of trade attained a new high mark of nearly $44,000,000 during the week ending October 23 alone, while merchandise exports from New York are mounting to totals previously unknown.

The railroads, which are always an excellent barometer of the nation's business, are furnishing some interesting readings these days. For instance, on October 16 the Atchison, Topeka and Santa Fe Railroad Company, which serves a large western territory, made a new record in loading cars out of Chicago, handling 6,114 in one day. However, before the close of the following week, this record was smashed, when 6,136 cars were loaded with merchandise and dispatched from the Chicago terminal.

"We thought we had gone about as high as we could," said Vice-President Edward Chambers, "when we raised it to 6,114 cars. Thursday (October 21) it went to 6,136 cars, making a new big day. That is a lot of business for a railroad that is not depending upon war orders. Last January we were doing about 4,000 to 4,500 and that followed upon the close of the best year in our history. There is a genuine revival in general business. You can say that I am decidedly bullish."

At last the railroads are awake to the situation in the steel industry, and are rushing to cover their requirements before deliveries become more uncertain. During at least nine months of the present year the carriers have done little or nothing towards replacing steel and equipment that has already seen more than the usual amount of service—but now they are placing huge orders with the mills and supply companies.

Another feature of the past two weeks has been the bank clearings which were of record volume, largely surpassing those of previous years. Total clearings for the week ending October 23 were $4,703,913,218, an increase of 101.6 per cent as compared with $2,333,384,337 of the same week last year, and of 49.0 per cent when contrasted with $3,156,744,842 reported for the corresponding week in 1913.

Coincident with the rise in price of other building materials, manufacturers of white enameled wall tile, such as is used in hospitals, public lavatories and subways, have decided to advance the price of that commodity by agreeing to restrict shading and price cutting. The result is that today the accepted price for sanitary floor and wall tile is only about two cents a foot below the high level ruling for this material in 1912, and there are rea-

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Make it known in "Brick and Clay Record's" Classified Columns, and get results.

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Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.
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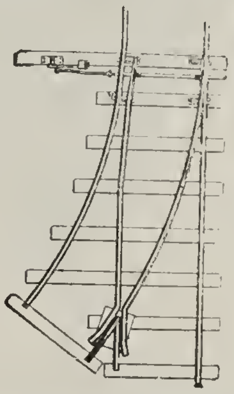
Cincinnati Frog & Switch Co., Cincinnati, Ohio



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Send for Catalogue No. 65-B
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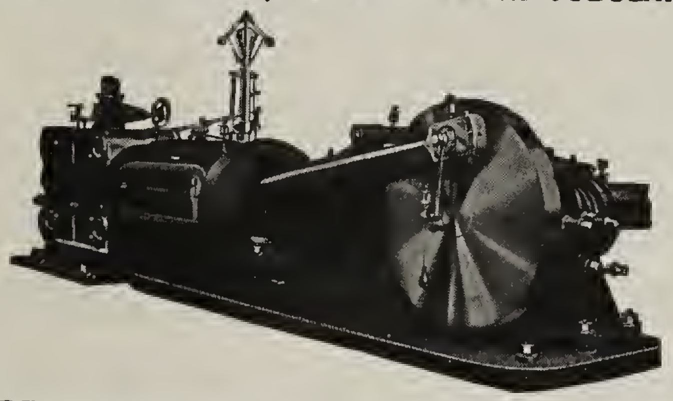

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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories
Offices: Steubenville, Ohio
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All Sections from 12 lb. to 40 lb. per yard
Write or wire us when in need
No order too large to handle promptly or too small to receive immediate attention

Pyrometer Advice

Don't condemn pyrometers because you failed to get results with the ones you have used. It is evident you have never installed the STUPAKOFF STANDARD LE CHATELIER PYROMETER. Write for a copy of "Pyrometer Facts."

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STRENGTH UNIFORMITY DURABILITY
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Even a tough steel wire is only as strong as the loop. Our wires are made of Swedish steel, and the loops have the three points of strength as noted.

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PERFORATED SHEET METALS OF EVERY DESCRIPTION
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PERFORATED METAL SCREENS
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sons to believe that the price will equal this former level by the first of the year.

The week ending October 23 saw the close of brick plants along the Hudson River, with a reserve stock of only 60,000,000 brick, or approximately fifty per cent below normal. This in face of the fact that all signs point to active autumn, winter and early spring building, both in New York and its suburbs. For two weeks previous to this time, the price of common-brick on the New York market had been gradually gaining strength, a seven dollar price being quoted on the 23rd with predictions freely made that the price would go still higher.

With a small stock in their sheds, Hudson River manufacturers will be compelled to "speed up" operations when the plants reopen in the spring to meet a demand which, it is prophesied, will be very great. There is little doubt but that the present revival in building will gain momentum during the winter months and open the spring with a boom in new construction work. This will necessitate not only Hudson River but all clay plants in the Metropolitan district operating to capacity, creating a demand for new equipment and repairs, the like of which has not been seen for many months—perhaps years.

In reviewing the events of the past two weeks, they may be best described as further confirming the now widespread opinion that there has been a decided upturn in business, bringing with it a marked renewal of activity in building operations.

Confidence is the key-note of the hour. Everywhere industrial expansion is taking place with leaps and bounds. Men are certain that prosperity is here and that still better times are coming. To the clayworker, this feeling means much. It means that building projects long held in abeyance, are now to be released. These, together with the new operations that will come as various industries awaken to their new opportunities, will create a demand for clay products that will be, without doubt, the greatest in history.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

PERSONAL

Not the worst of Archie D. Jacobs' troubles are to be found in the business of making and selling brick. A short time ago, Archie—president of the Chicago (Ill.) Brick Company—decided to take on a life partner, and so a quiet wedding was planned at the home of Miss Ruth Gould, the other party to the proposed alliance.

Miss Gould, however, had long been a resident of the neighborhood in which she lived, and had many friends. The younger set decided upon a charivari, but instead of waiting until the wedding was over with their serenade, they filled the street in front of the bride's house prior to the ceremony. The racket made by the serenaders drew such a crowd that it was impossible for the invited guests to get near the house. A telephone call brought the police who had a hard time with the mob, but finally managed to clear a passage. After many interruptions,

SAY I SAW IT IN BRICK AND CLAY RECORD

the ceremony was performed and the couple left late in the evening for their wedding tour.

Walter M. Pratt, of Earlville, Ill., who owns three drain tile factories and makes them pay, called at "Brick and Clay Record's" editorial offices last week, the occasion being a shopping expedition (mostly on the part of Mrs. Pratt) to Chicago, preparatory to a two months' trip to the Pacific Coast where, among other attractions, they will visit the model, modern, fire-safe residence erected at the Panama-Pacific International Exposition as a demonstration of the beauty and economy of brick construction.

George H. Fiedler, general manager of the Coral Ridge Clay Products Company, Louisville, Ky., recently returned from a trip to Quitman, Ga., where he spent the latter part of October. The company has completed its new department for the manufacture of fireproofing, having already burned three kilns of this material. The company has secured the order for the common-brick to be used in the new Tyler Hotel building, and is about to start deliveries on the Speed job, which will require 40,000 hollow-brick and 600,000 common-brick.

Edward K. Cormack, former president of the National Builders' Supply Association and, until recently, vice-president and manager of sales of the Wisconsin Lime and Cement Company, of Chicago, has severed his connection with that organization and has organized a new company, which will deal in all kinds of buildings supplies, including face-brick. The new company will be known as the Consolidated Company, and will have offices in one of the buildings in the Loop district—probably in the Chamber of Commerce.

L. D. Binyon, president of the Chicago Face Brick Association and his side partner James A. Hogan, have just returned from a trip through Ohio, where they have visited many of the face-brick plants. They report conditions as favorable, so far as optimism is concerned, with plenty of brick on hand to sell, but with the belief that there will be no trouble in selling it, and at a fair price.

T. L. Myers, who for many years has represented a large clay machinery company on the Pacific Coast, is now general manager of the Livermore Fire Brick Company of Livermore and San Francisco, Cal., and of the California Brick Company, which operates a plant at Niles, near Livermore, and which is under the same ownership as the first mentioned company. Mr. Myers reports that the plants have been operating steadily all summer.

Paul Hartung of the Belden Brick Company, Canton, Ohio, was in Cincinnati recently, visiting the company's local representatives. Belden brick has found much favor with Cincinnati architects and builders.

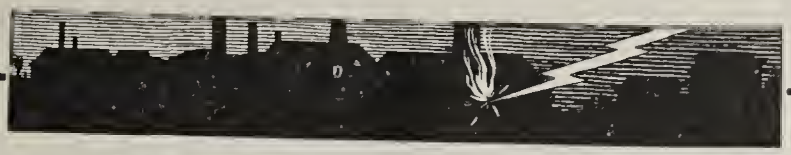
At Clay City, Ky., J. E. Burgher is building a drain-tile plant. Mr. Burgher was formerly editor of the Clay City "Times," but resigned two years ago to take up farming. He later experimented in the manufacture of clay drain-tile and, after making tile for some time as a side line, decided to go into the business on a larger scale.

L. Perry West, of the West Brothers Brick Company, Washington, D. C., has just returned from a trip to New

"When Do You Put Her Out"?
Guess At It—Time Limit—Or Price

Do you know positively when your kiln has reached and sustained for a sufficient length of time—a maturing temperature?
A Price Pyrometer furnishes absolute information.

The Price Electric Co.
12367 Euclid Ave.
Cleveland, Ohio



Are You Prepared Waiting—Watchfully?
for the first indication of loss, from lightning — thieves — vandals — sparks from trains—kilns neglected—burners asleep—for these things will happen in the long hours of a quiet night.
The complete Hardinge Watchman's Clock System costs only $36.00.
It protects, prevents and saves.
Send for proof—now.

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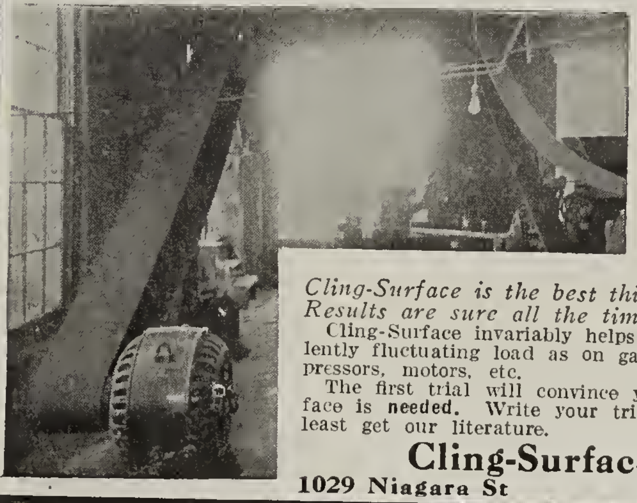
Approved and labeled by National Board of Fire Underwriters.



Good Belt Service Began When Cling-Surface Was Used in this factory: Jersey Cereal Food Co., Cereal, Pa. Mr. R. J. Foster, Gen. Mgr. writes: *"The motor belt slipped before Cling-Surface came, but not since. The 8-inch belt formerly gave much trouble. Cling-Surface is the best thing we ever used. Results are sure all the time."*
Cling-Surface invariably helps a belt driving violently fluctuating load as on gas engines, air compressors, motors, etc.
The first trial will convince you that Cling-Surface is needed. Write your trial order now or at least get our literature.
Cling-Surface Co 90
1029 Niagara St Buffalo N Y

"The Tanks with a Reputation"
Hoop Lugs made by Caldwell
will never slip or give way. They are the only "positive grip" lugs on the market. This lug does not depend on friction to hold it, as other lugs do.
Our catalogue of Tanks and Hoop Lugs, contains illustrations giving full details. Let us send you a copy and make you prices.
We can ship promptly.

W. E. CALDWELL CO., Inc. Louisville, Ky.
Tanks (*Steel-Wood*) Towers
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Wind Mills—Pumps—Gas Engines

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Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

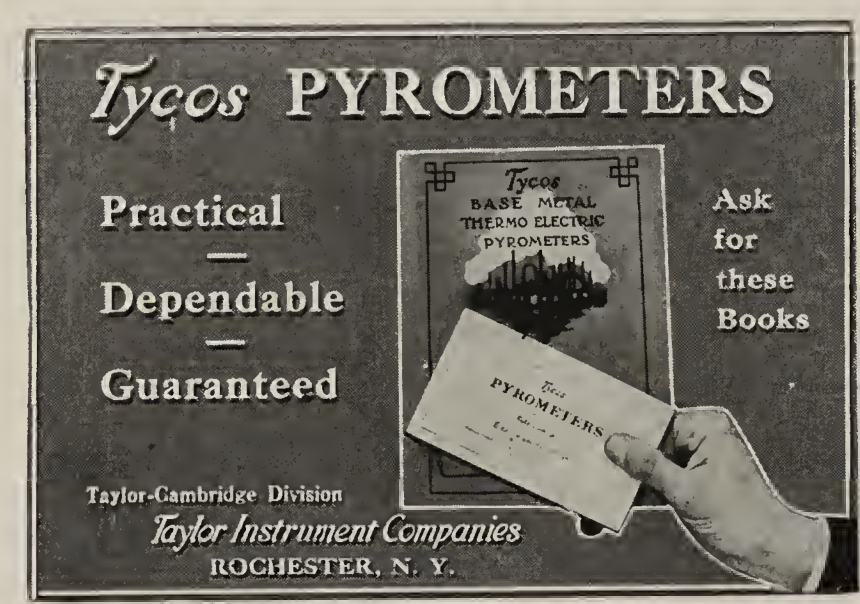
Pettigrew Foundry Co.
Harvey, Illinois

Broken Edges?—No!

Not when you use Hinde & Dauch Corrugated Boxes. The brick are so thoroughly protected that they must reach destination in good condition. Brickmakers in all parts of the country are using these boxes. Why not you?

Economical, Dependable, Durable

The Hinde & Dauch Paper Co., Sandusky, O.


Tycos PYROMETERS

Practical
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Dependable
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Guaranteed

Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

Do you carry extra chains?

Have you insured your shovel output by carrying in stock extra lengths of Woodhouse Specials—all ready for the time when you will need them—Quick ? You should—you know why!

Woodhouse Chain Works
Trenton, N. J.

York City. The company reports a good business, as do the other Washington manufacturers of common-brick.

Edward F. Whitnall, formerly manager of the Pennsylvania Coal and Supply Company, Milwaukee, Wis., has organized a new concern, which will operate in Milwaukee and be known as the Whitnall Coal and Supply Company. Offices have been engaged in the Caswell block.

James Coles Roberts of the U. S. Bureau of Mines has been elected to the Joseph Austin Holmes scholarship of safety and efficiency engineering at the Colorado State School of Mines, Golden, Colo.

Frederick B. Stevens, of Detroit, whose specialty is fire-brick, states that business for the first ten months of this year was far ahead of any similar period in years past.

G. S. Bowdish, of the National Paving Company, Kansas City, Mo., has been in California for some time looking over the field with a view to establishing a plant.

Lewis N. Wesch, formerly with T. L. Barrett, a Louisville building supply dealer, has accepted a position as brick salesman for the Tyler Building Supply Company.

J. J. Chamberlain, president of the Hubbard and Chamberlain Brick Company, Los Angeles, Cal., was in San Francisco recently on business.

H. R. Blaufelt, a brick dealer at Oklahoma City, Okla., after spending some time in California during the past summer, has returned to his home town.

ARKANSAS

The Choctaw Brick and Gas Company, Mansfield, Ark., one of the largest dry-pressed brick concerns in the South, has orders for 260 cars of brick for delivery to all parts of the country.

CALIFORNIA

The California Brick Company has changed its address from Decoto to Niles, Cal.

The trustees of Sonora, Cal., are having plans drawn now for a new sewer system and will soon be in the market for a large quantity of sewer-pipe.

Dealers in brick and other building materials at Fresno, Cal., have organized a credit association for the improvement of collections in the building trades.

After a very successful season, the Pomona (Cal.) Brick Company is now burning its last kiln, making a total production of two million brick for the year.

John H. May of Napa, Cal., has secured the contract to supply a large quantity of eight-inch sewer-pipe, together with the necessary wyes, for that city.

The Steiger Terra Cotta and Pottery Works, San Francisco, Cal., reports a fairly large amount of small work in hand. The demand for sewer-pipe is dull, but the call for fire-brick is normal.

COLORADO

The Diamond Fire Brick Company, Pueblo, Colo., has orders booked for its product that will require several months to fill. Owing to an inability to secure the neces-

(*Continued on page* 688.)

SAY!

Are you using Nugget Babbit?

WELL — WHY NOT? —

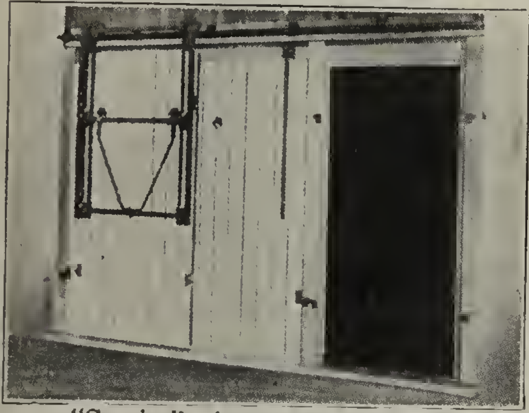
It's the best—its hardness insures great wear resistance—it stands up under heavy duty—over one hundred other plants stock it—and use it.

What's your address?

THE CLEVELAND ALLOYS CO.
CLEVELAND - - - - - OHIO

Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the



"Carrier" with One Door Lifted.

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Indiana

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the **dependable brand.**

Write for circular and prices.

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Chicago, Ill.
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We carry a complete line of high grade chemicals for the clay industry

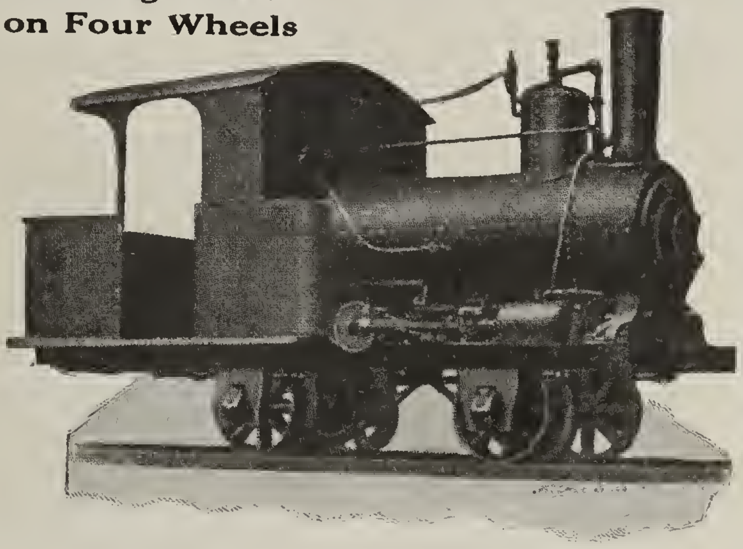
$500 FOR YOU

Install a **Rust Special Clay Feeder** and it will save you that amount each year in labor. Its use also insures a more even mix, producing uniform ware. Let us tell you more about its advantages.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

We have other clayworking machinery.

"Getting There" on Four Wheels



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Costs $1200 About as Much as a Good Team of Mules

It Never Balks on Heavy Loads or Grades

It pulls a full load under every condition and on any track. Does more and costs less than any type of Standard Locomotive of same size and power.

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Write

for descriptive literature and "reasons why" you will save money by having the Dewey in your plant.

DEWEY BROS.
GOLDSBORO, N. C.

THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

FALSE RUMORS

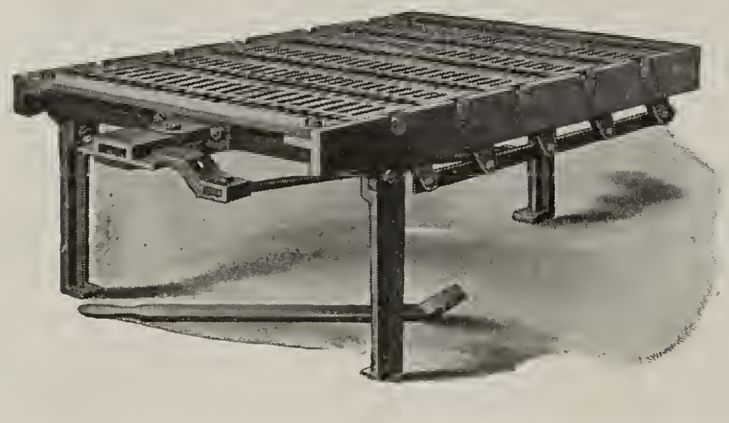
CONTRARY to current rumors, exceptional demands for military powders do not affect our productions of Blasting Powder, Dynamite and Sporting Powder.

Extensive plants, large stocks of materials, ample storage and shipping facilities enable us to accept and promptly complete contracts for products of DU PONT standard.

Specify DU PONT and be assured of prompt shipments of explosives of known efficiency.

E. I. du Pont de Nemours & Company
Powder Makers Since 1802
Wilmington, Delaware

THE CANTON KILN GRATE



FOR THE PLANT THAT COUNTS THE COST

It enables that plant to buy fewer carloads of coal, and to pay less for the carloads that it does buy. For—the Canton Kiln Grate burns less coal; it does it thoroughly and economically, and it can burn a low grade of coal—to accomplish the same results that you are getting (or want to get) now.

Bulletin B contains complete information on use of grate in kilns.

THE CANTON GRATE CO.
1706 Woodland Ave. CANTON, OHIO

sary men, the company has been compelled to work but one shift at the plant, where two shifts are needed to speed up production.

CONNECTICUT

Brick manufacturers of New Britain, Conn., and vicinity, have contributed more than 50,000 brick toward the 300,000 that will be needed for the erection of the New Britain Boys' Club building.

DELAWARE

The International Clay Company, Wilmington, Del., has been incorporated with a capital stock of $100,000, to deal in clays and other materials. The incorporators are: David L. Levy, Morris Rees and Forrest H. Emmons, all of Wilmington.

DISTRICT OF COLUMBIA

The Washington (D. C.) Brick and Terra Company has received an order to furnish 4,500,000 common-brick for the Interior Department Building. The same firm reports the receipt of an order for 300,000 brick for the new factory being erected by the District of Columbia Paper Mills Company.

The Washington (D. C.) office of the Hydraulic-Press Brick Company reports that it has been awarded the contract for furnishing the brick for the new office building of the American Federation of Labor. The building, eight stories in height, will cost about $200,000. Hollow tile fireproofing will also be used in this building.

GEORGIA

The R. B. Small Company of Columbus, Ga., has changed its corporate name to Columbus Sewer Pipe Company, R. B. Small retaining his offices of president and treasurer, and J. E. Minter, secretary and general manager.

Meeting in Atlanta, Ga., on September 28, the Georgia Railroad Commission ordered that the Macon (Ga.) rate on sewer-pipe be raised. The petition of manufacturers in Rome and Columbus, complaining that the classification as it now stands discriminates against these points, in favor of Macon, and asking a change, was granted. The commission directed that the carriers remove the discrimination by raising the rate to Macon. No objection was made by the Macon interests. The commission also ordered a revision of rates on carload lots of sewer-pipe so that mixing will not be permitted; that is, a rate will be provided to cover other articles of manufacture of a kindred nature when shipped from a manufacturing plant.

ILLINOIS

It is said that a record of 325,000 common-brick, made in a single day, has been reached at the Manteno (Ill.) yard of the Illinois Brick Company.

The Tiffany Enameled Brick Company, of Momence, Ill., has about completed the shipment of an order of a half-million white glazed brick to the Ford Automobile Company, at Detroit, Mich.

The Streator (Ill.) Brick Company, of which F. Plumb is president, and which was formerly known as the Streator Paving Brick Company, has sold nearly all of the stock of paving brick which it had on the plant at the beginning of the year—said to be about three million. At the present time the plant is running on face-brick exclusively and making about 45,000 a day.

According to an announcement made recently, by O. F. Hildebrant, secretary of the Greater Moline (Ill.) Committee, a clayworking concern will soon locate in that

(*Continued on page* 690.)

SAY I SAW IT IN BRICK AND CLAY RECORD

Save Your Dry Cars

You are using from two hundred to two thousand metal cars in the tunnel dryers. These cars are being bathed constantly in an atmosphere charged with damp, acid gases at high temperature. The result is that the cars deteriorate and

Rust

You see it on every car; it's from one-sixteenth to one-eighth of an inch thick. It can be scraped off in showers. It is caused by the acid and moisture in the hot drying gases. This rust makes the decks and cars worthless in a few years.

Carbide Paint

covers up the metal. It prevents rusting and consequent deterioration—because it is acid, gas, heat and moisture proof. It costs but a few cents to paint a car to make the car everlasting. Try it out on your plant. It will save thousands of dollars.

Place your trial order—now.

E. R. STOWELL
ODEN MICH.

Down in the Pit

Where the big shovel is loading cars—half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive
light, speedy, powerful— to yank the loads out—the empties in.

Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only high in strength but dependably uniform.

A perfect vitrified paving block of your manufacture used with a perfect cement filler of Lehigh Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use Lehigh Cement than all others combined.

You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

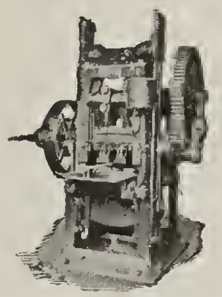
LEHIGH CEMENT

Cement Grout for Permanence.

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

We Manufacture



Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.

Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

Lakewood Engineering Co.
Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Yellow Strand Powersteel Truckline

It can easily move two loaded freight cars.

It coils up flat—takes up practically no room.

Its rated breaking strain is about 12 TONS.

Powersteel Truckline

is about 18 ft. long and ½ in. dia. Y. S. wire rope, equipped with strong drop forged hooks and heavy manila or wire slings—as desired.

Buy yours now for $6.50—test it—see it deliver the goods—then you will want one for each of your trucks.

Broderick & Bascom Rope Co.
703 N. Second St.
Saint Louis, Missouri

THWING HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

Acme Brick Company, Marietta, Ohio.
Adel Clay Products Co., Adel, Iowa.
Armstrong Cork Company, Beaver Falls, Pa.
Baker Clay Company, Grand Ledge, Mich.
Buckeye Firebrick & Clay Co., Scioto Furnace, Ohio.
Cork Brown Lime Company, Oshkosh, Wis.
Darlington Clay Products Co., Darlington, Pa.
Dressler-American Company, New Castle, Pa.
Eureka Brick Company, Richmond, Va.
Ludowici-Celadon Co., New Lexington, Ohio.
Milton Brick Company, Milton, Pa.
Minneapolis Clay Brick Co., Minneapolis, Minn.
Murphysboro Paving Brick Co., Murphysboro, Ill.
Heinz Roofing & Tile Co., Denver, Colo.
Puritan Brick Company, Hamden, Ohio.
Rookwood Pottery, Cincinnati, Ohio.
St. Lawrence Brick Co., La Prairie, Quebec.
Sebring China Pottery Co., Sebring, Ohio.
Straitsville Impervious Brick Co., New Straitsville, O.
Tuttle Brick Company, Middletown, Conn.
Upper Sandusky Tile Works, Upper Sandusky, O.
O. Zimbal Brick Company, Sheboygan, Wis.

Twenty-two New Users of THWING PYROMETERS
during the past twelve months is not a bad showing while business was so dull.

Others are on the way

THWING INSTRUMENT COMPANY
437 North Fifth Street PHILADELPHIA

city. The firm, it is reported, will have a capital stock of $100,000 and, altho the manufacture of ware will not be carried on in Moline, the main offices of the new company will be located there.

The Hydraulic-Press Brick Company is making some improvements at its Shale City plant, located about five miles east of Aledo, Ill. Several new kilns are being erected and other changes are being made. The plant has not been able to meet the demand for its product during the past year, and it is thought with these improvements the large orders that are being received can be taken care of promptly.

The face-brick interests in Chicago stick pretty close to the Chamber of Commerce building. When the Bonner and Marshall Brick Company vacated its quarters on the twelfth floor, in order to take advantage of the corner suite that was vacant on the ninth floor, the Thomas Moulding Brick Company stepped right in, and took half of the Bonner and Marshall space, a deal being made whereby F. W. Lucke and Company secured the other half. This gives the Moulding concern the most extensive quarters of any face-brick concern in the building, including the corner suite on the twelfth floor. The Hydraulic-Press Brick Company has the corner suite on the third floor, inside suites being occupied by the S. S. Kimbell Brick Company and the Kimbell-Hill Company. The Wisconsin Lime and Cement Company has extensive quarters on the sixth floor.

INDIANA

The Edgewater Tile Works, Edgerton, Ind., has made arrangements to open up its plant which has been closed for the past two months.

The Brazil (Ind.) Chamber of Commerce reports the offering of a clay plant site, near Brazil, to a group of Indianapolish capitalists who have been seeking one. The plant is located northwest of the city and is such as would meet the requirements of the investors.

The American Sewer Pipe Company, Brazil, Ind., has just completed an addition to its plant of three stories measuring 40 x 86 ft. This company has a contract for 12-ft. sewers for Indianapolis which will keep the plant in operation for several months.

IOWA

At a special meeting held at Des Moines, Ia., recently, the Scandia Brick and Tile Company was dissolved.

KENTUCKY

Warren Brothers, building material dealers in Louisville, Ky., report a good demand for roofing-tile. This company reports a consistant improvement in business and more orders than have been on hand at any previous time in its history.

E. W. Franklin and R. B. Franklin, of Whitesburg, Ky., have organized the Letcher Building and Supply Company to deal in a general line of building materials, including brick and other clay products.

The Louisville (Ky.) Builders' Supply Company recently received an order for six cars of hollow-tile, manufactured by the Delaware (Ohio) Clay Mfg. Co., to be used in the new annex to the Tyler Hotel.

The Louisville (Ky.) Brick Company is making deliveries on a number of jobs, including the St. Augustine School at Jeffersonville, Ind. which will require a total of 500,000 brick, and the new Reeser buildings in Dulaney place, Louisville.

The Interstate Commerce Commission recently an-

(*Continued on page 692.*)

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Flower Pots—

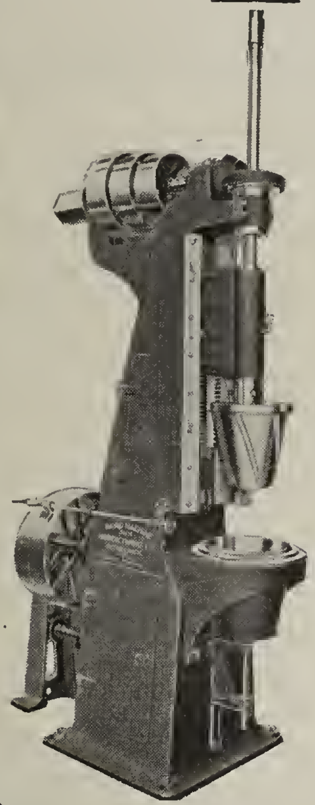
A Profitable Bi-Product

No matter what the nature of your clayworking plant, it is no doubt possible for you to add Flower Pot manufacturing with very little additional outlay.

Often you wish you had some way to keep Jim Smith or Jack Jones busy all the time, don't you? Well, here's the solution: put in a

Baird

Flower Pot Machine



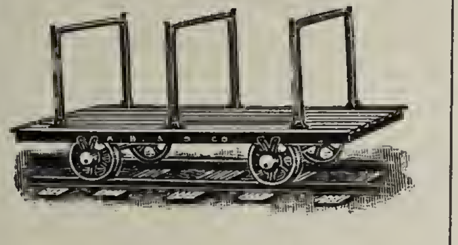
Easy to operate, absolutely accurate. Makes any regular size pot desired.

Send us a sample of your clay and let us show you what our machine will do.

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

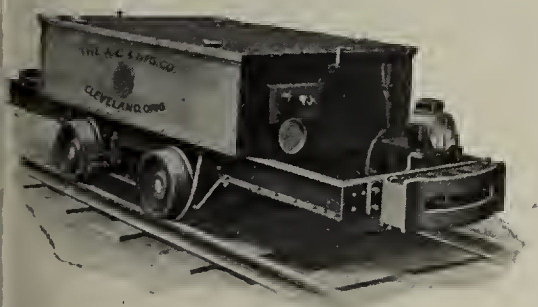
REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor



No. 126 Double Deck Dryer Car

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

THE ATLAS CAR & MFG. CO.
Dept.
1287 Marquette Road, Cleveland, Ohio

After comparing the old and the new systems, and deciding that you prefer gas pipes to coal carts — the next decision is whether you want

ONE FURNACE or ONE HUNDRED

The ordinary sized plant usually has one hundred kiln furnaces—one hundred separate and distinct chances for mismanagement—to clinker—to clean—to maintain with grates—and periodically with new fire brick linings, worn out by clinkering.

Each furnace is a metallurgical furnace, presenting individual difficulties to the successful control of kiln temperatures.

This—as opposed to modern thought—which is

The Underwood Producer Gas Burning System (Patented)

It has one central station for the combustion of coal—the gas producer.

Here are localized the coal bins—the coal-fired furnaces, the ash, dirt and clinkers—and a clean, rich, yellow gas is piped for the kiln being fired.

Send for proofs.

THE MANUFACTURERS EQUIPMENT CO. Who have

"Everthing for the Clayworker"

Dayton, Ohio, U. S. A.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Marion
GASOLINE SHOVELS

GOING to work is a whole lot more profitable to you than *getting ready* to go to work! It's a safe bet that when you want clay you *want it right then,* and when you've finished for the day you want to stop and either let the crew go home or turn to something else.

That's where the beauty of the new Marion Gasoline Shovel comes in. It's a mighty digger, and, size for size, will do all the things a steam shovel will; but a single turn or two of the starting crank sets it going, and stopping it is merely a matter of throwing out the spark. This new Marion is

READY When *YOU* Are; Bigger Than the Toughest Digging; Runs at Low Cost; Needs No Licensed Engineer

Owning and operating a Marion Gasoline Shovel means that *you can really do your work* SUCCESSFULLY with *only one man in the cab.* You want to remember THAT—for he has only one pair of eyes, and if he's going to do a good job, he must keep them on the work out in front.

Write us today for full information about Marion Gasoline Shovels, mentioning whatever facts about your work will help us make our reply *more really useful* to you. Special Catalog 951 will be mailed upon request.

THE MARION STEAM SHOVEL COMPANY
Established 1884
Manufacturers of Excavating Machinery of Every Description
Station A, MARION, OHIO
Atlanta Chicago New York San Francisco Seattle

60

nounced that a hearing would be held at Owensboro, Ky., on November 22 by Examiner Graham in the pending rate cases of the Rockport (Ind.) Drain and Tile Company against the Southern Railway Company.

The R. B. Tylor Company, Louisville, Ky., has recently secured a number of attractive orders for face-brick. The largest of these calls for 65,000 rough-textured brick for the Bethlehem Evangelical Church, in Louisville. The interior of this church will be decorated with gray brick manufactured by the Columbus (Ohio) Brick and Terra Cotta Company. This is the second or third church in Louisville during the past few months that has had its interior finished in this way.

Kentucky brick manufacturers are interested in a recent movement of the Kentucky Manufacturers' and Shippers' Association which, at its annual convention held in Louisville on October 19, went on record as favoring the passage of an equitable and just workmen's compensation law in Kentucky. A special committee of the association which has been working on the matter for some time was authorized to continue its work and to report at a meeting to be held in November.

The Coral Ridge Clay Products Company recently enjoyed a complimentary notice in the Louisville (Ky.) "Herald," which is conducting on its front page a series of "Things You Should Know About Louisville Industries." A short history of the company was given. It is only two years old but has an output of 60,000 brick daily, and plans for enlarging the plant are under consideration.

The Louisville (Ky.) Commercial Club is at present considering the establishment of a traffic bureau for the purpose of furnishing rates, routings and tariffs to local shippers. The bureau would also collect freight overcharges and act with the shippers in cases of discrimination on the part of the carriers. The Kentucky Manufacturers' and Shippers' Association has also started to make arrangements for such a bureau and the Louisville Board of Trade has changed its transportation department to a traffic bureau which will be conducted along the same lines.

All over the state of Kentucky manufacturers of clay products are watching with much interest the new movement that provides for the enactment of a workingmen's compensation law at the next session of the Legislature, which will be held during the first part of 1916. A commission of six men, two representing manufacturing interests, two mining interests and two the labor interests, has been working on the proposition for some weeks and is endeavoring, with proper legal advice, to agree upon the principal features of the law that will be offered. A similar law was passed by the last Legislature but the courts "knocked it out" as infringing on personal liberties guaranteed by the constitution.

LOUISIANA

The Salmen Brick and Lumber Company of Slidell, La., "entertained" a burglar some days ago at its branch office in New Orleans. The midnight guest cracked the safe, but found nothing there that he could use, so made his adieux without disturbing the watchman.

MICHIGAN

Brick manufacturers and dealers in all parts of Michigan

(*Continued on page* 694.)

What Do Your Dry Pans Produce?

The preparation of your clay or shale for the pug mill is so important that you should know to a certainty how much per ton it costs to grind this material.

Right there at the source you might find an opportunity to cut your manufacturing costs sufficient to make your net profit column show up as you would have it.

STEVENSON DRY PANS

produce more because "toughness" is built into them—gears always mesh—screen plates are almost "hole-proof"—there is no overtime grinding—step and toe are of tool steel and bronze.

Scores of clayworkers stand ready to attest to the great efficiency and economy of STEVENSON PANS.

Ask us—we'll furnish abundant proof of our ability to serve you better than you have ever been served before.

The Stevenson Company
Wellsville, Ohio
"In the Heart of the Clay Industry'

Lower Cost Only One Advantage

EVERY belt user wants belting that will do his work well, yet at the same time the cost must be as low as is consistent with the service secured.

The low cost of GANDY STITCHED COTTON DUCK BELTING would be no advantage, if the belting itself did not offer many superior features: it is not affected by dust, moisture, oils, etc.

Gandy Stitched Cotton Duck Belting

For 36 years it has proved its ability to do the work as well or better than more expensive belts, yet the initial cost of GANDY is only about one-third that of leather belting, and much less than that of rubber belting.

Test it out. Ask us for samples. We welcome an opportunity to place our proposition before you.

The Gandy Belting Co.
732 West Pratt Street
Baltimore, Md.

New York Office
36 Warren Street

IF

you were to be positively convinced that by installing a different system of burning—you could "lop off" at least one fourth of your coal shipments—one fourth of your burning time—one fourth of your labor—

and actually improve the quality of your ware—the uniformity of the burn—the value of each burn—

You would undoubtedly install that "different system", which is The Hook System for big or little plants.

Let us tell you more.

The Hook Patent Kiln Co.
Vigo, Ohio
Canadian Office: 250 Dufferin St., Toronto, Ont.

have started a campaign to place "Build with Brick" signs on the cross roads. The Detroit Brick Manufacturers and Dealers' Association started this plan of publicity some months ago, and, it is reported, has produced excellent results.

The new display room of the United Fuel and Supply Company, on the second floor of the Free Press Building, Detroit, is now complete. Manager Harry A. Walters, of the face-brick department, is receiving many compliments from architects and contractors, who are visiting the room.

For the past two months, nearly every common-brick plant in Detroit has been working nights. With the new addition to the Hotel Statler, the Detroit Public Library, the Regent Theatre, the new Crowley, Milner and Company building, several public schools and a large number of other business and residential structures, it is certain that this condition will continue for some time to come. August, September and October, it is stated, were the best months local brick manufacturers have ever enjoyed. The common-brick output for Detroit this year will approximate 350,000,000. Beginning early in 1916 it is estimated that the annual output of the Mercier, Bryan & Larkins Company will be 150,000,000 annually. This will bring Detroit's annual production up to about 475,000,000.

MISSOURI

The W. S. Dickey Company, of Kansas City, Mo., was recently awarded a contract by the purchasing officer of the Panama Canal at Washington, D. C., for furnishing a large quantity of fire-brick for use in the Canal Zone.

NEW JERSEY

William Steele and Sons Company, of Philadelphia, have been awarded the contract for designing and erecting buildings to be located at Gloucester, N. J., and which will be used by the Welsbach Company. The buildings will be of brick construction, three stories in height, and absolutely fireproof. They will be eighty feet wide by three hundred feet long, and will cost in the neighborhood of $500,000.

NEW YORK

Edward D. White, for many years president of the Brooklyn (N. Y.) Fire Brick Works, died on October 14 at the age of ninety-three years.

ONTARIO

Walkerville and Windsor (Ont.) builders are claiming that they are being discriminated against by the railroad companies. They allege that $2.18 is paid for brick from eastern points, while the rate to Detroit is $2.10, although the Detroit freight has to pass through Windsor, which is directly across the river.

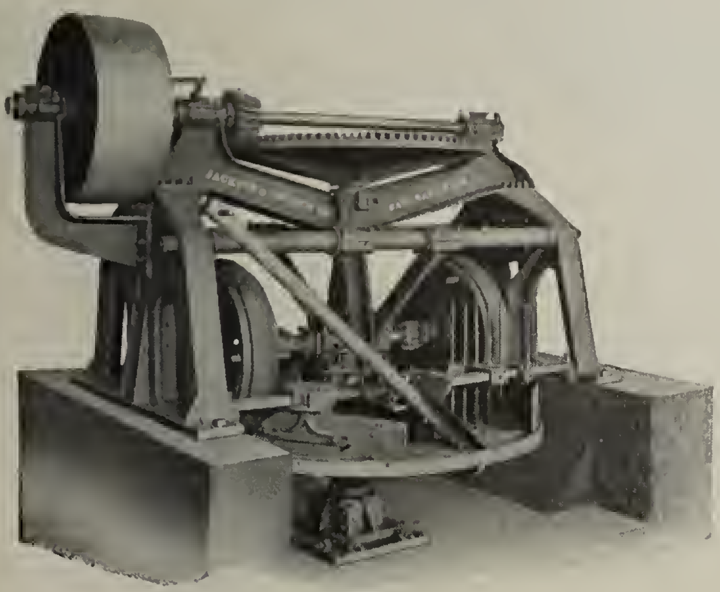
In order to consolidate the company's interests in Canada and United States, the headquarters of the West Lake Brick Company, formerly located in Wellington, Ont., have been transferred to Fort Erie, Ont., near Niagara Falls, where the company will engage in the brick forwarding business. A new plant may be built later at Fort Erie.

OREGON

Through its Portland (Ore.) office the Denny-Renton Clay and Coal Company of Seattle, Wash., is shipping 137,000 paving-brick to Astoria, Ore., for municipal work. The company is also supplying 125,000 paving-brick for the Washington State School for the Blind at Vancouver, Wash. Other recent orders are for architectural terra-cotta to be used in the Methodist Sunday School Temple

(*Continued on page* 696.)

SAY "I SAW IT IN BRICK AND CLAY RECORD"



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

THEW SHOVELS

Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

THEN JUST ASK

for Circular 22 A. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown, and other information incorporated of a character that will interest all clayworkers.

Thew Shovel which saves wages of 10 men every da y

There are now

Over 300 Thew Shovels in the Clayworking Industry

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew features of particular advantage in this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send m rcular 22 A, giving cost facts for digging clay and shale and other information of interest as advertised in "Brick and Clay Record."

Name.........................

Address.........................

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Did You Hear About It?

That Sensation in Clay Products Dryer Circles!

We rather expected there would be a lot of intense interest aroused by our announcement on the front cover of the preceding issue of Brick and Clay Record—

But we had no idea there would be such an avalanche of inquiries pile in on us.

It is clearly an indication that there are scores of progressive clay workers who realize that they must cut their dryer costs in order to successfully meet competition.

The "Proctor" Drying System

Has proven in actual performance that it will dry clay ware efficiently, with less than one percent of waste, at a reduction of 50% to 75% of time, with less labor and a much smaller equipment of cars than required by other methods.

We have some Dryer Facts we want to present to you. Ask us—no obligation to you.

Philadelphia Textile Machinery Co.
Philadelphia, Pa.

Some "Proctor" Dried Brick—Less than 1% Waste

SAY "I SAW IT IN" BRICK AND CLAY RECORD

at Portland, and sewer-pipe for both trunk and lateral lines in the new sewer system at McMinnville, Ore.

TENNESSEE

The E. T. Lewis Company at Nashville, Tenn., has been changed to the Nashville Brick and Tile Company.

John Grenade is operating a brick plant at McKenzie, Tenn., and is turning out large quantities of common-brick.

The Whipple Tile Works, Union City, Tenn., is busy making drain tile, much of which is being used on the farms in the Reelfoot Lake section of Tennessee.

The Fulcher Brick Company, Nashville, Tenn., reports excellent sales and good prospects for a steady improvement in the demand for its product from now on. The company is shipping large quantities of brick to South Carolina, a market that has heretofore been rather unprofitable for Nashville-made brick.

TEXAS

The brick plant of the International Bricklayers' Union at El Paso, Tex., will be greatly enlarged when conditions in Mexico become tranquil, according to William Dobson, secretary of the union. Mr. Dobson, whose headquarters are in Indianapolis, Ind., stated that the union is planning to build four more brick plants in different parts of the United States and one in Canada.

The new plant of the Abilene (Tex.) Pressed Brick Company is now ready for operation after having been inactive for almost a year. The original plant was destroyed by fire, the work of rebuilding, which is now completed, having been under way for some time. In addition to new machinery, other new equipment has been installed, including a tramway to transport the clay from the pit to the storage sheds.

VERMONT

The Drury Brick and Tile Company, Essex Junction Vt., has finished making brick for the season, having produced about 6,000,000, which is considered a good output Two large kilns are now ready to be lighted at this plant

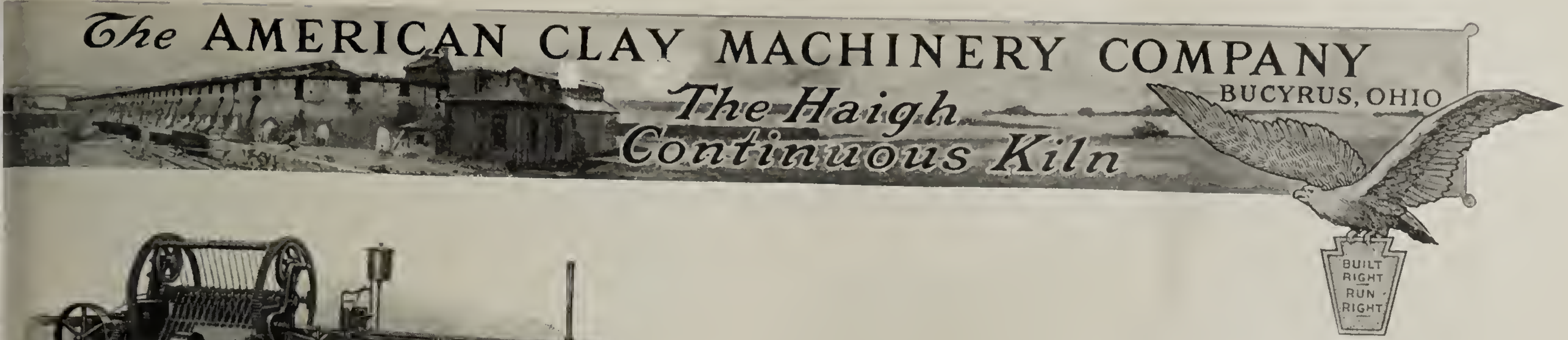
WASHINGTON

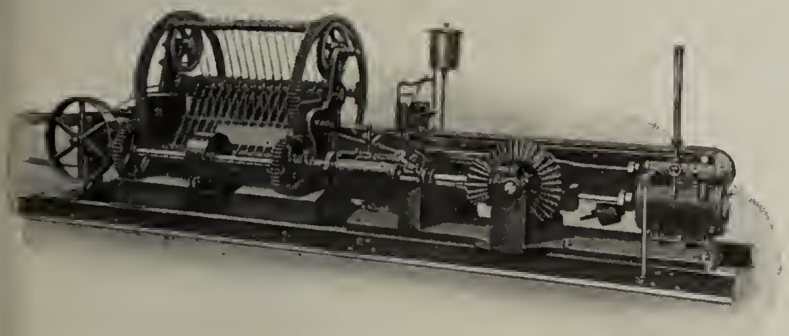
The Washington Brick, Lime & Sewer Pipe Company of Spokane, Wash., has secured an order for 100,000 brick to be used in the addition to the Girls' Correction Schoo at Grand Mound, Wash. The company reports a large and growing demand for sewer-pipe for irrigation purposes. Two sewer-pipe orders, one calling for fifty car and another for fifteen, are now being filled for irrigation projects near North Yakima, Wash.

The Denny-Renton Clay and Coal Company, Seattle Wash., has completed the delivery of 700,000 paving-bric for the last link in the Pacific Highway, a state roa between Seattle and Tacoma. The same company ha completed the delivery of the terra-cotta for the new Kings county court house. The company is now shippin fifteen carloads of paving brick each day to Astoria Ore., for street improvements.

WEST VIRGINIA

The Bluefield (W. Va.) Brick Company has change ownership and, after a summer of idleness, is again i operation. W. F. Houck, one of the original stockholder in the enterprise, J. H. Houck and J. A. Warren of Bristol have secured the plant, increasing its capitalizatio from $27,000 to $30,000. This increase of $3,000 is t cover additional machinery which the company will install.


The AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO
The Haigh Continuous Kiln
BUILT RIGHT RUN RIGHT



American Automatic Cutter.

American Auger Machine.

American Pug Mill.

American-Haigh Continuous Kiln.

Increased Capacity Increased Profits

When your find it advisable to make changes in your plants, it will be well to remember to ask for information about—

Our New Line of Automatic Cutters
Our New Line of Auger Machines
Our New Line of Pug Mills

These are all essential to profitable production and they have all been designed to increase capacity and decrease the cost of operation. That means increased profits.

There are no other machines that compete with these. Get complete descriptions and judge for yourself.

The Haigh Continuous Kiln will save about a half of your burning cost. Ask for catalog and particulars.

The American Steam Shovel will reduce your clay cost.

We supply large and small wants with equal care.

The American Clay Machinery Co.
Bucyrus, Ohio

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

SAY I SAW IT IN BRICK AND CLAY RECORD

THE BUYERS' DIRECTORY
Of Clay Products Machinery Manufacturers

Analysts and Chemists, Clay.
Ceramic Sup. & Cons. Co.

Aerial Tramways.
Broderick & Bascom Rope Co.

Babbitt Metal.
Cleveland Alloys Co.
Fate, J. D. Co.
Gerlock, H. W.

Barrows and Trucks.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Chicago Brick Machy. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Fdry. Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Weller Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belts.
American Clay Machy. Co.
Bonnot Co.
Ceramic Sup. & Cons. Co.
Freese & Co., E. M.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Sawyer Belting Co.

Belt Conveyors.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Sup. & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Belt Dressing.
Cling-Surface Co.

Boilers.
(See Engines and Boilers.)

Brick Conveyors.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Link-Belt Co.
Manufacturers Equipment Co.

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.
Wellington Machine Co.

Car Movers.
Marion Mach., Fdry. & S. Co.

Cartons (Mailing).
Hinde & Dauch Paper Co.

Castings.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Gerlock, H. W.
Link-Belt Co.
Manufacturers Equipment Co.

Cement Filler.
Lehigh Portland Cement Co.

Chains (Steam Shovel).
Woodhouse Chain Works.

Clay Feeders and Mixers.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Schaffer Eng. & Equipment Co.
Steele & Sons, J. C.
Stevenson Co.

Clay Gatherers.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Clay Steamers.
American Clay Machy. Co.
Schaffer Eng. & Equipment Co.

Coloring.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Conveying Machinery.
(See Elevators and Conveyors.)

Counters.
Ceramic Supply & Cons. Co.

Crushers and Pulverizers.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Wellington Machine Co.

Cutters, Automatic Rotary.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

Cutting Wires.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Webb Wire Works.

Dies.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Nuttall Co., R. D.
Weller Mfg. Co.

Disintegrators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equip. Co.
Marion M. Fdry. & Sup. Co.

Door Carrier (Dry Kiln).
Dry Kiln Door Carrier Co.

Dryers.
American Clay Machy. Co.
American Process Co.
Bartlett Snow & Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Philadelphia Textile Mchy. Co.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Trautwein Dryer & Eng. Co.
Wellington Machine Co.

Dryers (Sand).
American Process Company.
Ceramic Supply & Cons. Co.
Fate, Co., The J. D.
Jackson & Church Co.
Schaffer Eng. & Equip. Co.

Dry Pans.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Fate, J. D. Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Stevenson Co., The.

Dry Press Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.

Dynamos.
General Electric Co.
Westinghouse El. & Mfg. Co.

Electric Shovels.
American Clay Machy. Co.
Link-Belt Co.
Thew Automatic Shovel Co.

Electrical Instruments.
Brown Instrument Co.
Engelhard, Chas.
General Electric Co.
Taylor Instrument Companies.

Elevator Buckets.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Elevators and Conveyors.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Fate, J. D. Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Stevenson Co.
Weller Mfg. Co.

Engines and Boilers.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.

Excavators.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Engineers and Builders.
American Clay Machy. Co.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Copping Bros.
Freese & Co., E. M.
Smith Co., Claude.
Trautwein Dryer & Eng. Co.

Explosives.
Du Pont Powder Co.

Fans.
American Blower.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Canton Grate Co.
Freese & Co., E. M.
Jackson & Church Co.
Murray Iron Wks. Co.

Filler (Paving.)
Barrett Mfg. Co.
Lehigh Portland Cement Co.

Filter Presses.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Stevenson Co., The.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Cleaners.
Marion Mach. Fy. & Sup. C

Frogs and Switches.
Cincinnati Frog & Switch Co

Gears.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Fate, J. D. Co.
Chambers Bros. Co.
General Electric Co.
Link-Belt Co.
Nuttall Co., R. D.

Granulators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Wallace Mfg. Co.

Grates and Grate Bars.
Brewer & Co., H.
Canton Grate Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, J. D. Co.
Gerlock, H. W.
Jackson & Church Co.
Manufacturers Equipment Co
Marion Mach., Fdry. & S. Co.
Murray Iron Wks. Co.
Smith Co., Claude.

Grease.
Stock Xylite Grease & Oil Co. G. B.

Hand Power Presses.
Clearfield Machine Shops.
Fate, J. D. Co.

Hoists.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Link-Belt Co.
Manufacturers Equipment C
Weller Mfg. Co.

Hollow Block Machinery.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment C

Hygrometers or Moisture Indicators.
Taylor Instrument Companie

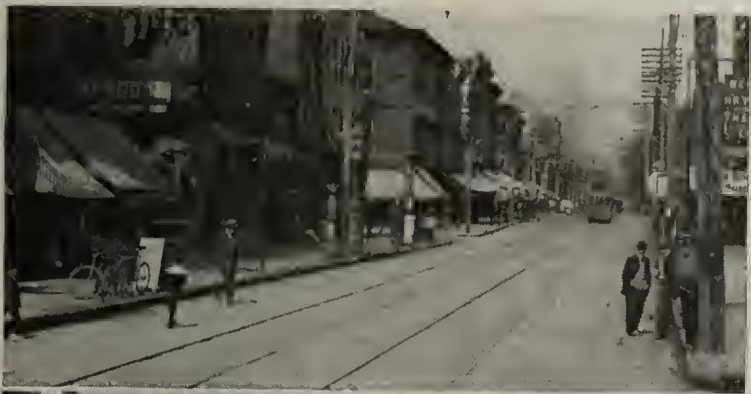
Kilns.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Hook Patent Kiln Co.
Manufacturers Equipment C
Schaffer Eng. & Equip. Co.
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

Kiln Accessories.
Caldwell Co., W. E.
Fate, J. D. Co.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

Lime Mixers.
Gerlock, H. W.

Locomotives (Electric).
Atlas Car & Mfg. Co.
General Electric Co.

SAY "I SAW IT IN" BRICK AND CLAY RECORD



Chillicothe Street
Portsmouth, Ohio
Pitch filled
1895

Barrett's PAVING PITCH

It lasts as long as the pavement

THESE pavements are pretty old, but the original Barrett's Paving Pitch in the joints is still on duty and is still maintaining a perfect seal against the intrusion of water and frost.

It still clings to the blocks in every kind of weather regardless of the expansion or contraction.

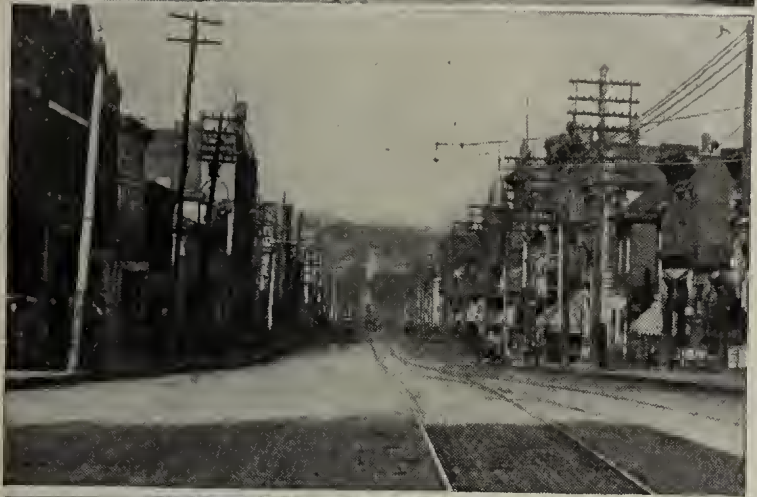
Chemically the pitch in these joints is just as good as it ever was and if it could be taken out, it could be melted up and used over again in a new pavement.

In none of these old pavements is to be found a single crack, for every joint is an expansion joint. The pavements are much quieter than if the joints were filled with cement and the footing for horses is better because a shallow groove is left at the top of each joint.

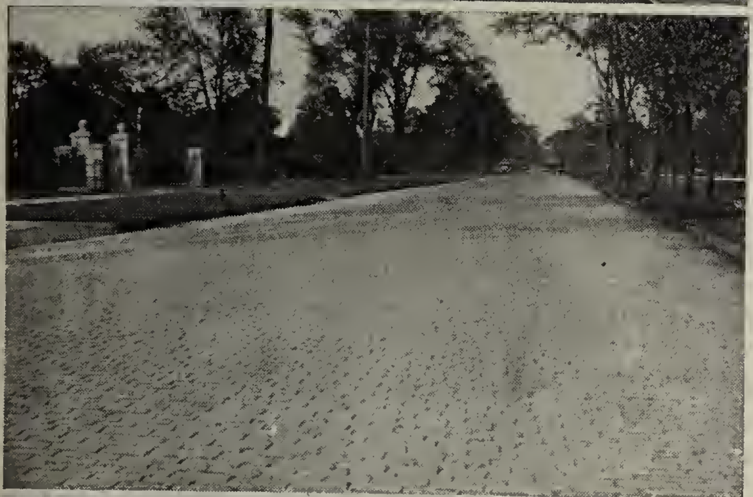
From the viewpoints of satisfaction and economy, no other filler is equal to Barrett's Paving Pitch.

We point to the illustrations herewith, and to many other streets all over the country with similar records of efficiency, to demonstrate the truthfulness of our claims.

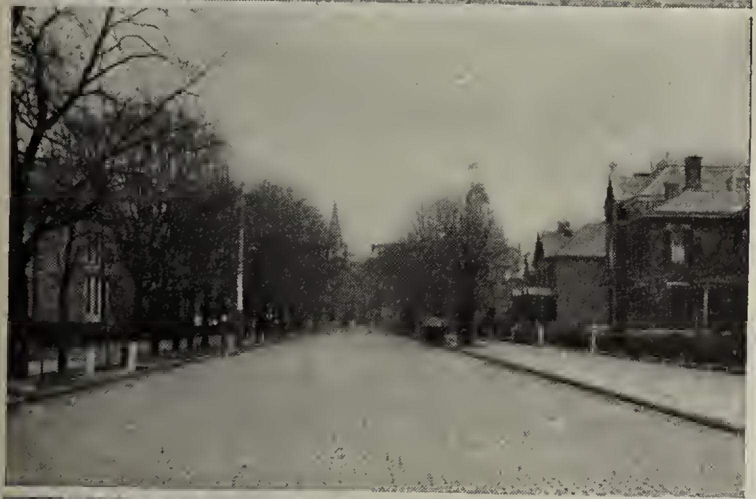
Booklets free on request.



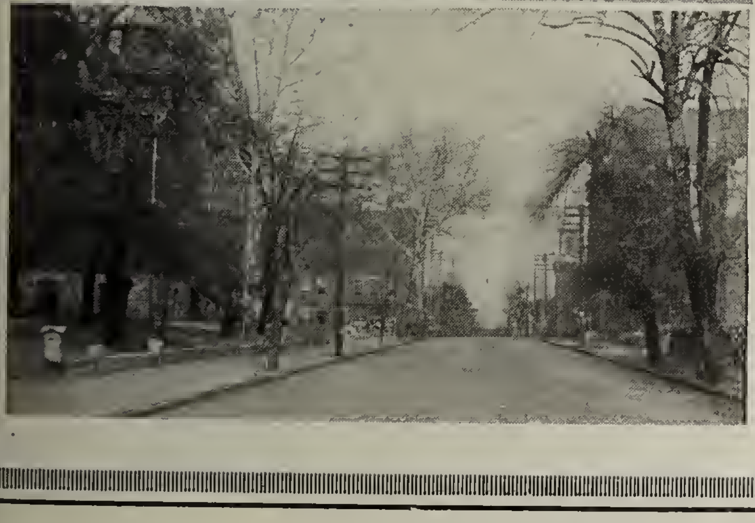
Main Street
Butler, Pa.
Paved
1891



Euclid Avenue
Cleveland, Ohio
Laid
1883 or 1884



East Rich Street
Columbus, Ohio
Pitch filler finished June 22,
1892



West Fourth Street
Newport, Ky.
Paved
1894

BARRETT MANUFACTURING COMPANY

New York	Chicago	Salt Lake City	Kansas City	Boston
St. Louis	Cleveland	Philadelphia	Seattle	Pittsburgh
Detroit	Birmingham	Cincinnati	Peoria	Minneapolis

The Paterson Mfg. Co., Limited: Montreal, Toronto,
Winnipeg, Vancouver, St. John, N. B.,
Halifax, N. S., Sydney, N. S.

TRADE B MARK

SAY "I SAW IT IN BRICK AND CLAY RECORD"

THE BUYERS' DIRECTORY—Continued

Locomotives (Gasoline).
Baldwin Locomotive Works.
Fate, J. D .Co.

Locomotives (Steam).
Davenport Locomo. Works.
Dewey Bros., Inc.

Lubricants
Stock Xylite Grease & Oil Co., G. B.

Manganese.
Roessler & Hasslacher Chemical Co.

Mortar Colors.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Molds.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Wellington Machine Co.

Mold Sanders.
American Clay Machy. Co.
Bonnot Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co.
Wellington Machine Co.

Motors—Electric.
General Electric Co.
Westinghouse El. & Mfg. Co.

Oil Burners.
Chicago Brick Machy. Co.
Weller Mfg. Co.

Oil Filters.
Canton Grate Co.

Paints.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Clearfield Machine Shops.
Jackson & Church.
Manufacturers Equipment Co.

Pallets and Trays.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

Patents.
Peck, Herbert E.

Perforated Sheet Metal.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Hendrick Mfg. Co.

Poidometers.
Schaffer Eng. & Equip. Co.

Portable Track.
Atlas Car & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.

Potters' Machinery.
Bonnot Co.
Baird Machine & Mfg. Co.
Fate, Co., The J. D.

Powder.
Du Pont Powder Co.

Power Plant Equipment (Complete).
American Clay Machy. Co.
Bonnot Co.
Jackson & Church Co.
Link-Belt Co.
Murray Iron Wks. Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Baird Machine & Mfg. Co.
Link-Belt Co.

Pug Mills.
American Clay Machy. Co.
Bonnot Co .
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Wellington Machine Co.

Pulverizers.
(See Crushers.)

Pyrometers.
Beighlee Instrument Co.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Stupakoff Laboratories.
Taylor Instrument Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.

Rails (Frogs and Switches).
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Engineering Co.

Rattler.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Freese & Co., E. M.
Hetherington & Berner
Manufacturers Equipment Co.

Recording Gages.
Brown Instrument Co.
Ceramic Sup. & Cons. Co.
Price Electric Co.
Taylor Instrument Companies.

Represses.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Steele & Sons, J. C.

Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Cons. Co.

Rope Preservative.
Cling-Surface Co.

Roofing Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.

Sand Dryers.
American Clay Machy. Co.
American Process Co.
Bonnot Co.
Fate Co., The J. D.
Jackson & Church Co.
Schaffer Eng. & Equip. Co.

Sand Lime Brick Machinery.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
American Clay Machy. Co.
Bonnot Co.
Brewer &. Co., H.
Chase Fdry. & Mfg. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link-Belt Co.
Schofield-Burkett Cons. Co.
Stevenson Co., The.
Weller Mfg. Co.

Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Stevenson Co.

Silent Chain Drives.
Link-Belt Co.

Soft Mud Brick Machines.
American Clay Machy. Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Wellington Machine Co.

Steamers (Clay).
American Clay Machy. Co.
Schaffer Eng. & Eq. Co.

Steam Separators.
Canton Grate Co.

Steam Shovels.
American Clay Machy. Co.
Marion Steam Shovel Co.
Thew Auto Shovel Co.

Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Wellington Machine Co.

Steel Pallets.
Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

Ties (Steel) and Tie Plates.
Cincinnati Frog & Switch Co.

Steel Towers.
Caldwell Co., W. E.

Supplies.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons. J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Weller Mfg. Co.
Wellington Machine Co.

Tanks.
Caldwell Co., W. E.

Thermometers.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Manufacturers Equipment Co
Standard Dry Kiln Co.

Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Wallace Mfg. Co.
Wellington Machine Co.

Time Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Traffic Counselor.
Preetorius, I.

Tramways.
Ambursen Co.

Unloading Devices for Pans.
American Clay Machy. Co.
Bonnot Co.
Clearfield Machine Shops.

Watchman's Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Water Tanks.
Caldwell Co., W. E.

Wheelbarrows.
(See Barrows and Trucks.)

Winding Drums.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, F. & S. Co.
Weller Mfg. Co.

Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

We Are Prejudiced

—so, when we tell you that The Standard Brick Drier will actually give you *better* results at *less* expense per year, you may think us overly enthusiastic.

Better Ask Users

They are not prejudiced. They know the *facts* from their own experience. Get the long list of brick manufacturers who use The Standard Natural Draft Drying System, and ask *them* about it. For list and descriptive catalog, address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

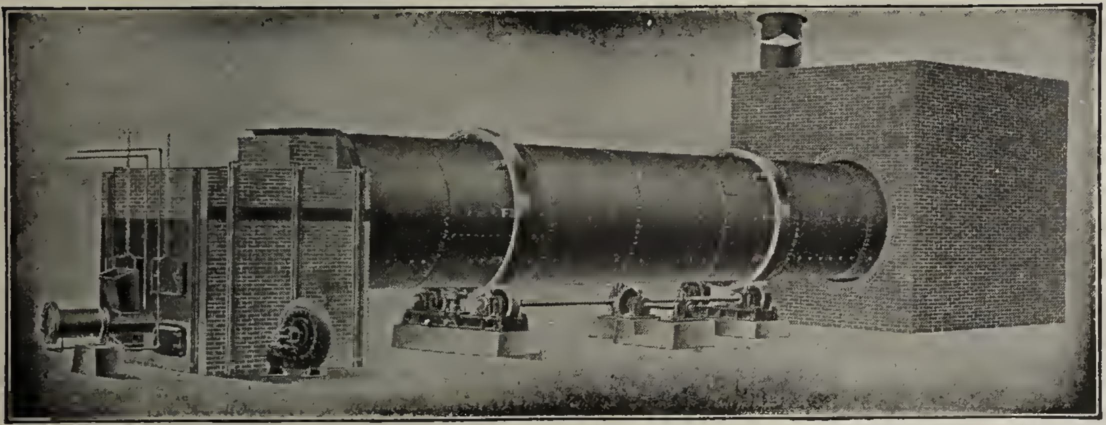
SAY I SAW IT IN BRICK AND CLAY RECORD

THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



ROTARY CLAY DRYER

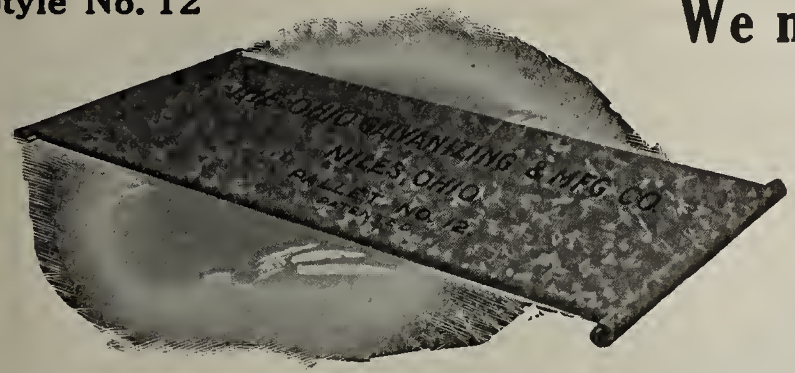
DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 500 1000	- -	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 500 1000	- - -	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 500 1000	-	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

Heat Treatment Halves the Cost
Trebles the Life of Steel Gearing

SS Grade lasts 2½ times as long, costs 44% less
BP Grade lasts 3½ times as long, costs 57% less
CH Grade lasts 5 times as long, costs 60% less
than untreated cast steel.

Send for "Red Book" of Proofs, or send a trial order subject to this **Guarantee.**

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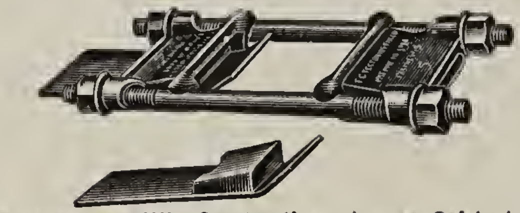
Tecktonius Kiln Band Fastener



Gives Permanency to Kiln Construction. Insures Safety to Kiln Contents.

WROUGHT IRON BANDS

Wall and Crown Guides
Crown Covers and Ventilators
Write for
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E. C. Tecktonius Mfg. Co.
Racine Junction, Wis., U. S. A.

Up-and-Down Draft Tecktonius-Vogt Round Kiln

THE STANDARD RATTLER FOR THE TESTING OF PAVING BRICK

As we now build this machine it embodies all of the

LATEST IMPROVEMENTS

and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

For descriptive circular and prices address

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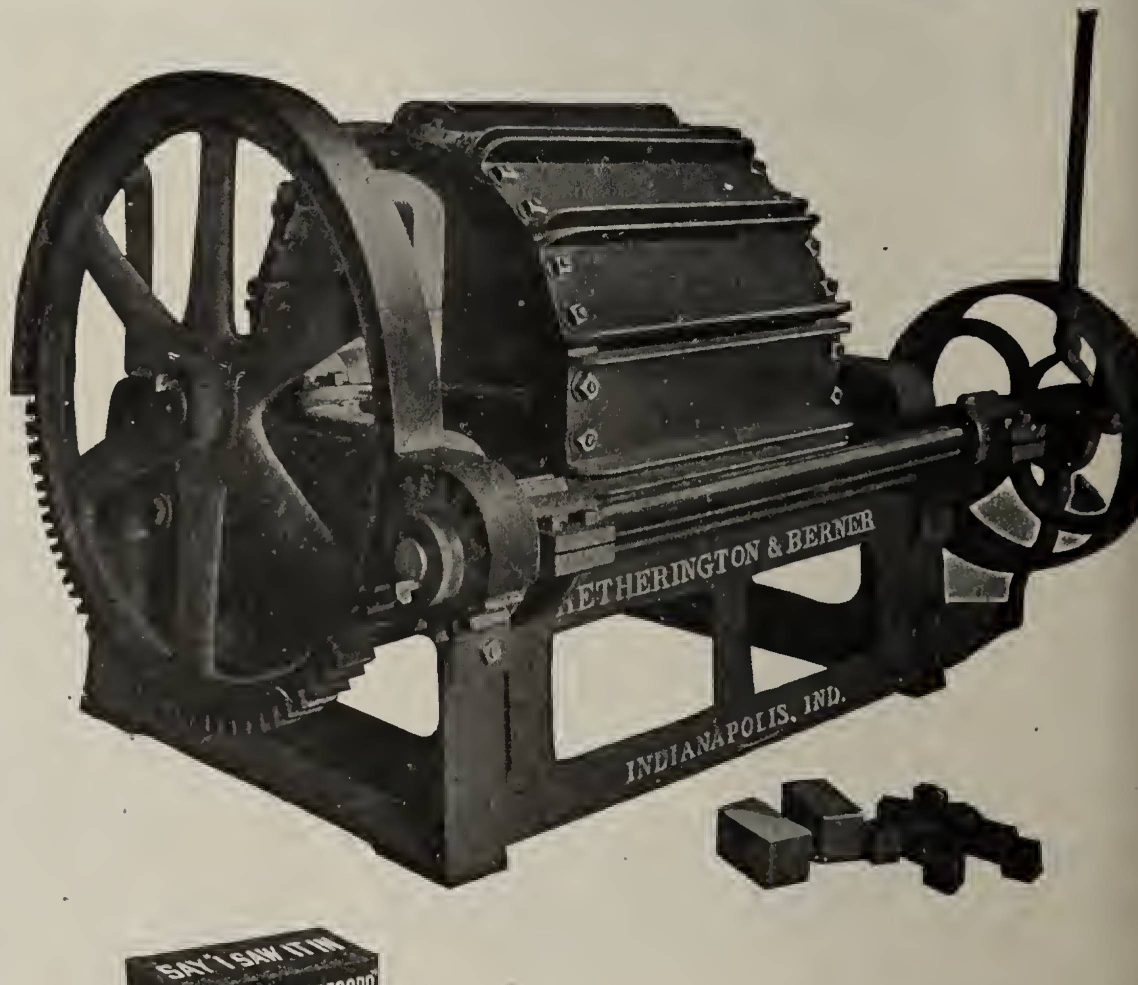


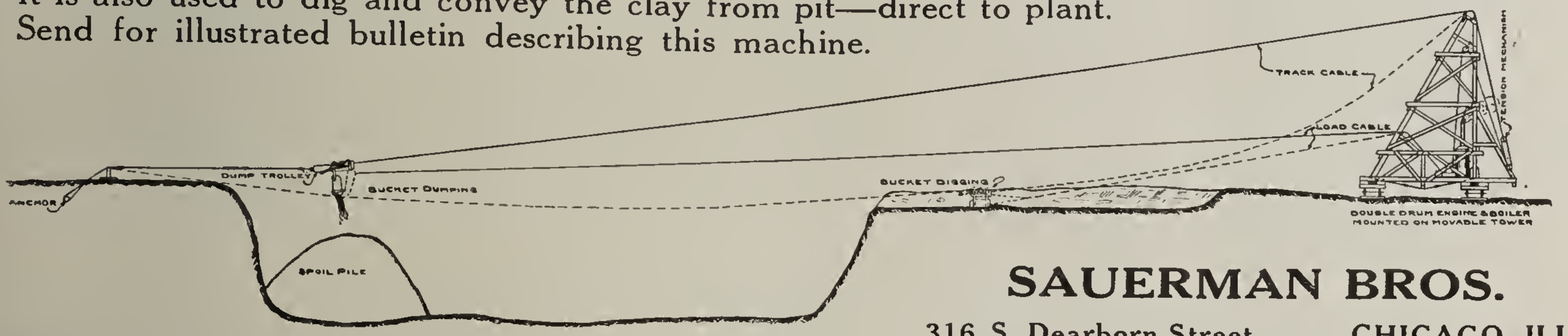
In Stripping Your Overburden—

You can replace a series of machines and equipment by one machine, which combines the three necessary features—digging, conveying (a distance of five hundred feet or more) and dumping—at any desired point—all under the positive control of **one operator.**

The Sauerman
Dragline Cableway Excavator
(Patented)

operated by a double drum friction hoist, and under the positive control of one man fulfills these requirements, and does the work more efficiently and more economically than any other known method.

It is also used to dig and convey the clay from pit—direct to plant.
Send for illustrated bulletin describing this machine.



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Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

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"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular coordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermocouples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

We Supply Pyrometer Installations
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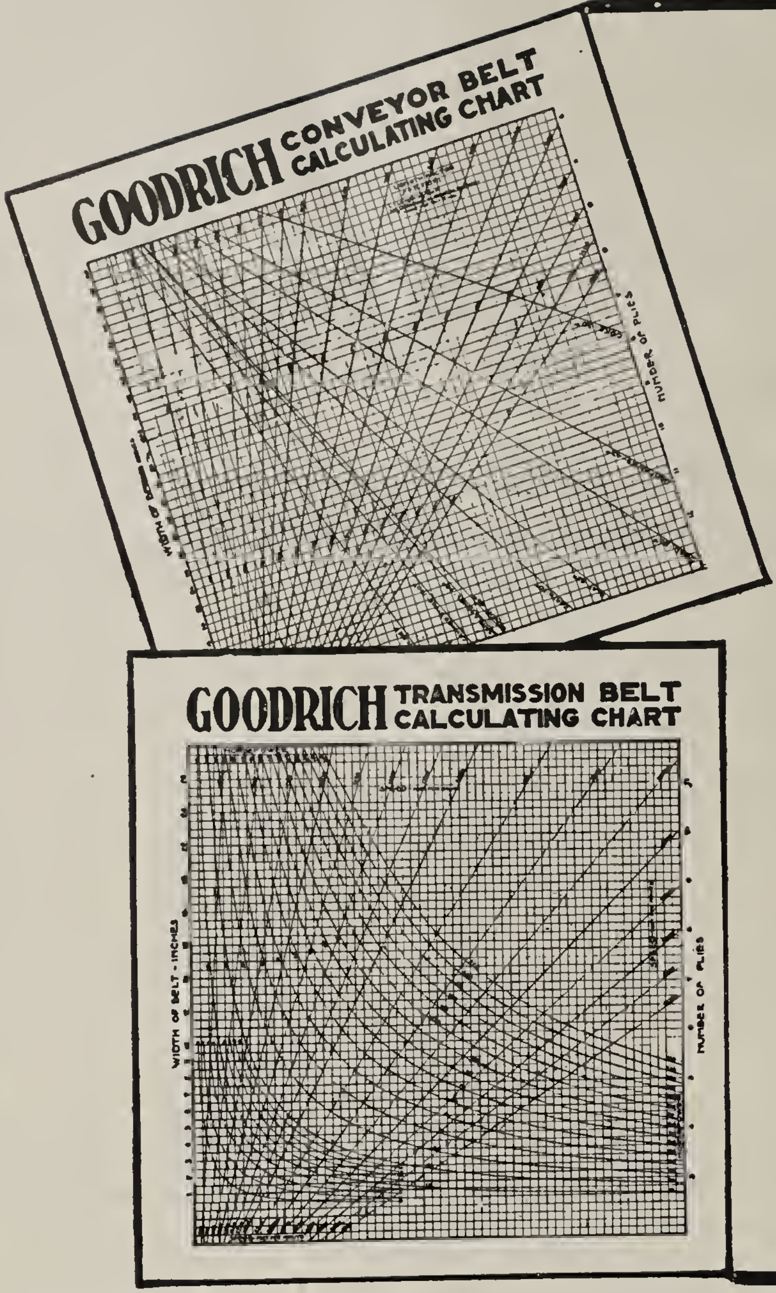

For the Correct Number of Plies

where belts operate under specific conditions

Ask GOODRICH

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Properly selected

Goodrich Conveyor and Transmission Belts

stand any gruelling service. Regardless of what belts you have used in the past, get the charts and conveniently make selections that are right for the future. It will cost you a post card addressed to

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Three Hundred Cubic Yards of Tough Clay in One Day

That is what the Schofield-Burkett excavator is doing each ten-hour day, on the plant of the Jova Brick Works, Roseton, N. Y.

The photograph shows the installation, which digs and delivers to the plant, or to some central point.

THE SCHOFIELD-BURKETT EXCAVATOR

is the simplest type, most economical and practical earth moving machine ever devised. Without industrial cars or track, it will dig and deliver—any kind of clay, shale, gravel or sand—to the conveyor or hopper, any required amount up to 600 yards per day.

WE GUARANTEE RESULTS. Get our catalog No. 10 now, and learn why we are able to make such broad claims.

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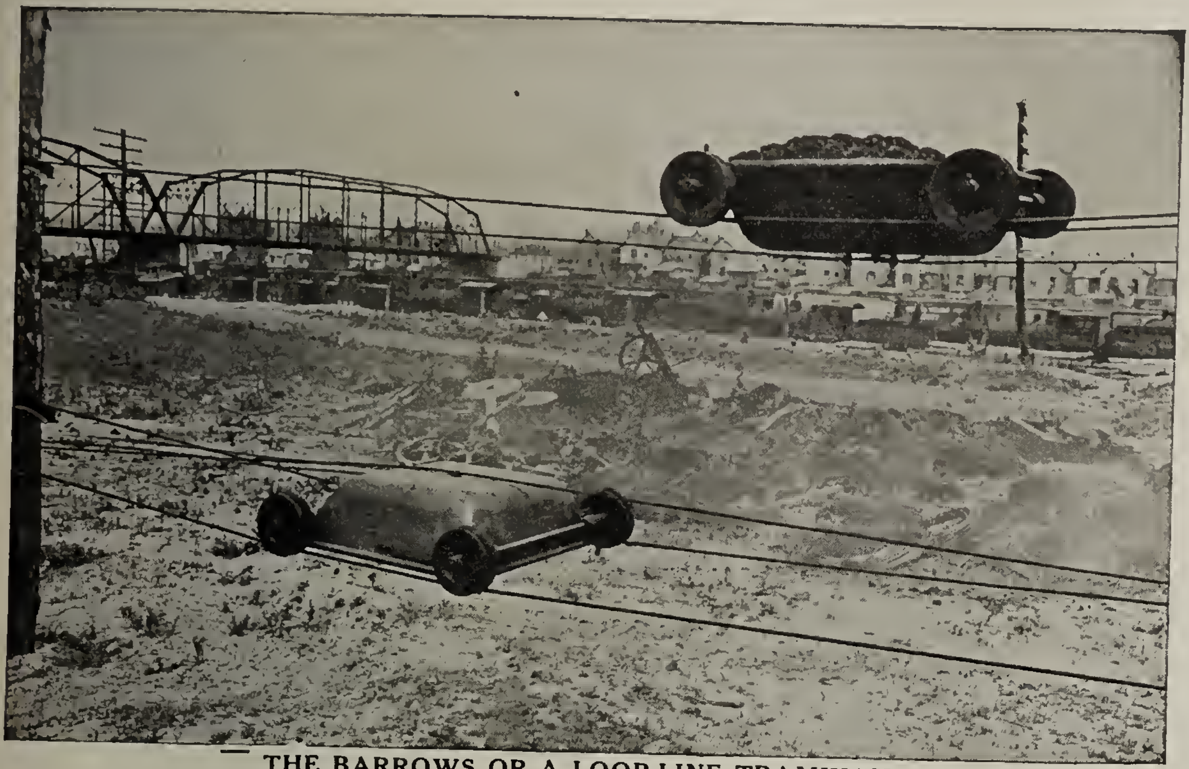
SAY "I SAW IT IN BRICK AND CLAY RECORD"

CONSIDER!



THE BARROWS OR A LOOP-LINE TRAMWAY

You have to haul clay, ore, sand or any other material five hundred feet to five miles.

This material is in or can be brought to a small bin with discharge chute attended by one man.

A continuous stream of barrows pass the bin each receiving its full load, the operator simply opening and closing a gate in the chute.

The barrows pass on down the line through the air, at the end they automatically turn over, dumping the load and pass back to the starting point ready for another load.

Not a Human Being Touches the Barrows.

They move along regularly and automatically. This is a Lawson Loop-Line Tramway.

CAN YOU BEAT IT?

Write for full information

AMBURSEN COMPANY

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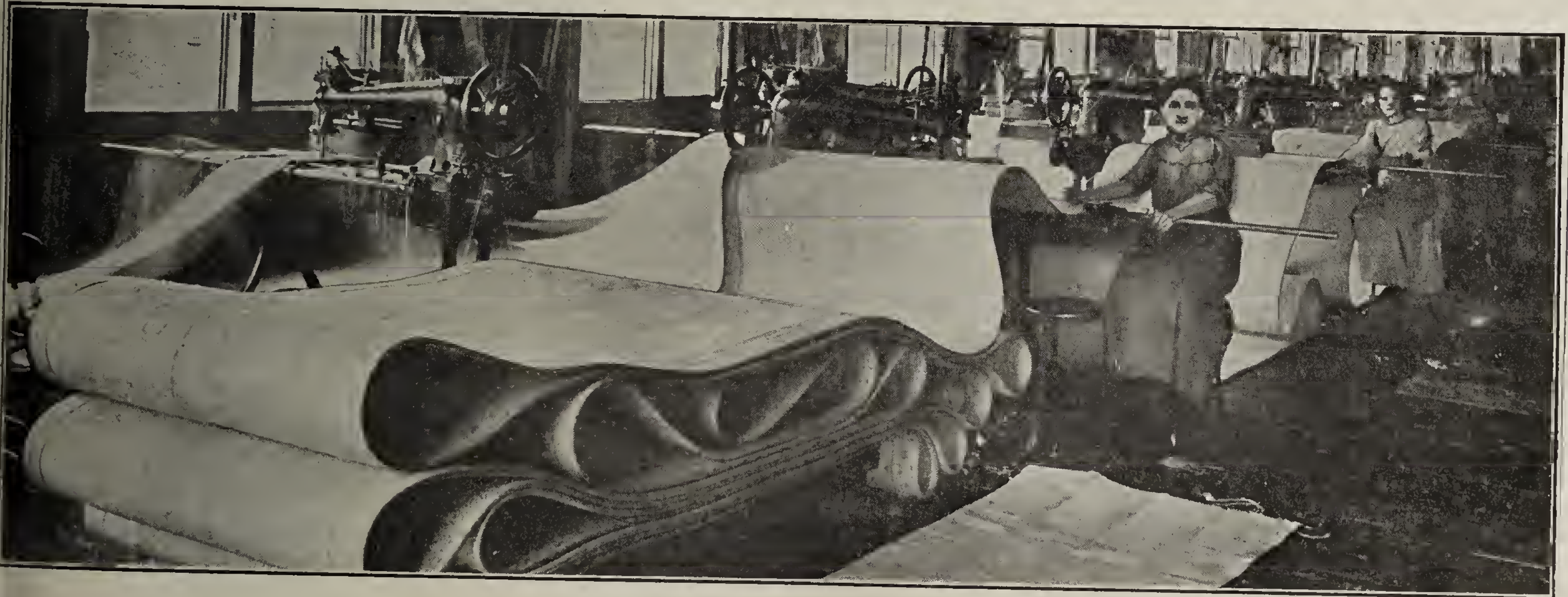
Every Stitch Counts



—In the manufacture of a belt. If the stitching is poorly done belts will not withstand the severe tests to which they are subject. The above photograph of a FORTY-EIGHT inch TEN ply SAWYER belt was taken in our factory. Write for booklet "F" and learn of the care exercised in making **Sawyer** Belts, and why you should use them.

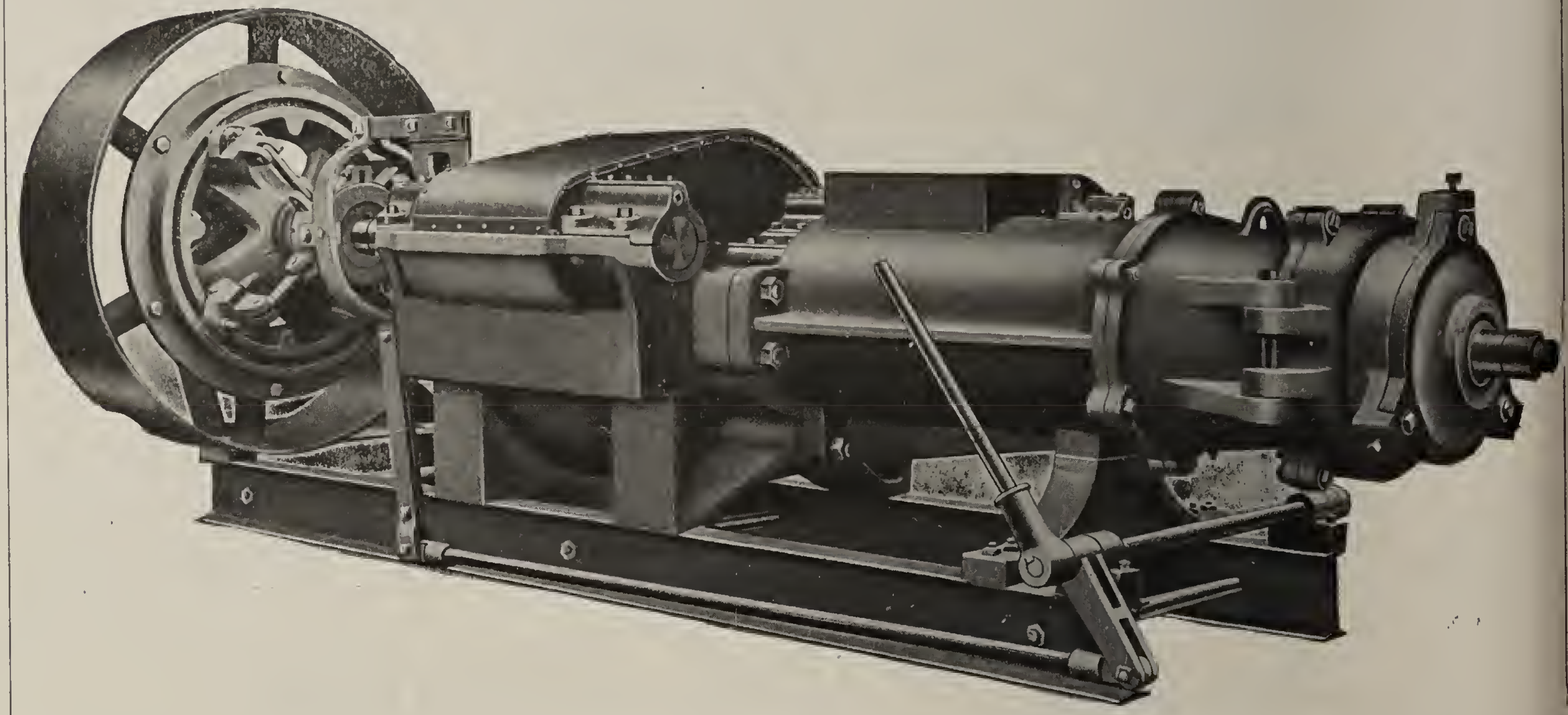
THE SAWYER BELTING COMPANY, Cleveland, O.

SAY "I SAW IT IN"
BRICK AND CLAY RECORD

IF MARKED BREWER IT'S GOOD

A NEW HORIZONTAL

DRAIN TILE MACHINE



The Brewer No. 88

Cut Gears, covered, and running in oil. Self-Oiling Bearings. High Efficiency Expressing Augers. Hammered Steel Shafts. Heavy Duty Friction Clutch. Nothing as well built ever offered before in the Drain Tile Machinery Line.

We build seven different patterns of Drain Tile Machines, including Horizontal, Upright and Down Delivery.

Also a large line of Crushers, Disintegrators, Pug Mills, Granulators, Feeders, Hoists, Automatic Cutters, etc., etc.

Write for Complete Catalog

H. BREWER & COMPANY, Tecumseh, Mich.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

Evans Clay Mfg. Co., Uhrichsville, O. 3
Keller Brick Co., The, Cuyahoga Falls, O. 8

BRICK (COMMON)

Alliance Brick Co., Alliance, O. 8
Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Keller Brick Co., The, Cuyahoga Falls, O. 8
Metropolitan Paving Brick Co., Canton, O. 5

BRICK (FACE)

Alliance Brick Co., Alliance, O. 8
Alliance Clay Pro. Co., Alliance, O. 5
American Enameled Brick & Tile Co., New York, N. Y. 8
Belden Brick Co., Canton, Ohio 8
Bradford Pressed Brick Co., Bradford, Pa. 6
Hocking Valley Pro. Co., Columbus, O. 8
Hydraulic Press Brick Co., St. Louis, Mo. 6
Ironclay Brick Co., Columbus, Ohio 8
Keller Brick Co., The, Cuyahoga Falls, O. 8
Kimbell Brick Co., S. S., Chicago, Ill. 8
Metropolitan Paving Brick Co., Canton, Ohio 5

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Alsey Brick & Tile Co., Alsey, Ill. 3
Chicago Retort & Fire Brick Co., Chicago, Ill. 4
Davis Fire Brick Co., Oak Hill, O. 3
Dover Fire Brick Co., Cleveland, O. 3
Evans Clay Mfg. Co., Uhrichsville, O. 3
Maurer & Son, H., New York City 3
Mexico Brick & Fire Clay Co., Mexico, Mo. 3
Jos. Soisson Fire Brick Co., Bolivar, Pa. 3
Southern Fire Brick & Clay Co., Chicago 3
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BRICK OR BLOCK (PAVING)

Alliance Clay Pro. Co., Alliance, O. 5
Alton Brick Co., Alton, Ill. 4
Barr Clay Co., Streator, Ill. 4
Bessemer Limestone Co., Youngstown, O. 5
Big Four Clay Co., Canton, O. 6
Carlyle Paving Brick Co., Portsmouth, O. 6
Danville Brick Co., Danville, Ill. 5
Deckman-Duty Brick Co., Cleveland, O. 5
Globe Brick Co., East Liverpool, O. 6
Harris Brick Co., Cincinnati, O. 6
Hocking Valley Brick Co., Columbus, O. 5
Metropolitan Paving Brick Co., Canton, O. 5
Murphysboro Paving Brick Co., Murphysboro, Ill. 4
Purington Paving Brick Co., Galesburg, Ill. 6
Shawmut Paving Brick Co., Shawmut, Pa. 6
Sterling Brick Co., Olean, N. Y. 4
Terre Haute Vit. Brick Co., Terre Haute, Ind. 4
United Brick Co., Conneaut, O. 5

DEALERS

American Clay & Cement Corp., Rochester, N. Y. 8
Kimbell Brick Co., S. S., Chicago, Ill. 6

FIRE PROOFING

Metropolitan Paving Brick Co., Canton, O. 5

RAGGLE BLOCKS

Kimbell Brick Co., S. S., Chicago, Ill. 8

REFRACTORIES

Davis Fire Brick Co., Oak Hill, O. 3
Dover Fire Brick Co., Cleveland, O. 3
Evans Clay Mfg. Co., Uhrichsville, O. 3
St. Louis Vit. & Fire Brick Co., St. Louis, Mo. 4

SEWER PIPE AND BRICK

Evans Clay Mfg. Co., Uhrichsville, O. 3

TILE (DRAIN)

Evans Clay Mfg. Co., Uhrichsville, O. 3

TILE (FLOOR)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 8

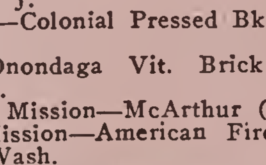
TILE (PROMENADE)

Pittsburg Tile Mfg. Co., E. Liverpool, O. 8

Trade Names Now in Use
on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus. O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Continental Paver—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook. E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Fisklock—Fiske & Co., Inc., Boston and New York.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Grid—Fiske & Co., Inc., Boston and New York.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nibatco—North Iowa Brick & Tile Co., Mason City, Iowa.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., East Liverpool, O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Royal Face Brick—Decatur (Ill.) Brick Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Twin Tex—Sheldon Brick & Building Supply Co., Urbana-Champaign, Ill.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
Velvet-Nap—W. B. Ferris Brick Co., Columbus, O.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vitrified Velvet—Adel (Ia.) Clay Pro. Co.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co
Wooster Paver—Wooster (O.) Shale Brick Co.



Fire Brick for all types of kilns.
For burning all kinds Clay Products.

***For* Side Walls**
***For* Crowns**
***For* Fire Arches**
***For* Perforated Bottoms**

Consult us when in market.
We are ready to serve you.

DAVIS FIRE BRICK CO.
OAK HILL, OHIO

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

Jos. Soisson Fire Brick Company

General Office, **Connellsville, Pa.**
Sales Office, **Bolivar, Pa.**
J. B. Hammond, Sales Manager

Mexico Brick & Fire Clay Co.
Mexico, Mo.

HIGH GRADE MEXICO FIRE BRICK TRADE MARK

Manufacturers of
High Grade Fire Brick
and Special Fire Clay Shapes

Fire Brick and Floor Tile for Brick and Tile Kilns a Specialty

Established 1856

HENRY MAURER & SON

Manufacturers of
High Grade Fire Brick

Our "Henry Maurer" No. 1 quality Fire Brick is recognized throughout the country as a standard article. We make all shapes and sizes for kiln-work and all other requirements. Catalogues on application. We solicit your inquiries.

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We Can Save You Money, Time and Trouble on Fire Brick

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Quality, Price and Service

Freight Rates on all R.R.'s in UNITED STATES and CANADA

A Trial Shipment Will Convince You
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Fire Brick for Kilns.

High grade fire brick, cupola blocks and fire clay.

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Standard Sewer Pipe
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Incorporated 1870

— MANUFACTURERS OF —
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Two of the many hundred kilns built of these famous brick. Are you using them?

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Makers of High Quality Brick for

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Repressed and Dunn Wire-Cut-Lug Block.

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THE CELEBRATED EGYPTIAN PAVING BLOCK

THE BLOCK THAT STANDS THE TEST

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Ironstone Block

"Often Rattled But Never Embarrassed"

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Made from shale
VITRIFIED

Many are not as good,
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None Are Better

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A High Grade Paving Block for City Streets and Main Highways

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THE HOME OF MEDAL BLOCK AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

Licensee of Dunn Wire-Cut-Lug Block. The *Best* and most suit-
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Plants	*General Office*
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Output 15,000,000 Annually

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Our booklet, “HINTS ON FARM DRAINAGE”, if distributed among the farmers in your vicinity will convince them of the practicability of using drain tile. Send for sample copy. :: :: ::

RICK AND CLAY RECORD, Chicago

“Best Paving Block Made”

Daily Capacity 500,000

The Metropolitan Paving Brick Co.
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ARE MADE OF

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The Purington Paving Brick Co.

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Vitrified Shale and Fire Clay
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Burned in Yates' Patent Kiln

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Best Testers and Most Durable

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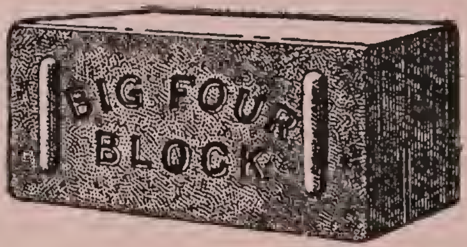
A Uniform Block which makes an Ideal Pavement



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Fire Clay Paving Blocks

Works at Kenilworth, W. Va.

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Bradford, Pennsylvania

Sole makers of the famous BRADFORD PRESSED BRICK" (Trade Mark Reg. U. S. Pat. Office) the brick of the DISTINCTIVE RED.
"BRADFORD REDS"—the smooth facing brick. Dry Pressed or Impervious, the former in Standard and Roman sizes. Ornamentals in stock.
"Bradford Ruffs"—a rough textured brick for unusual effects.

Samples sent prepaid on request.

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Every texture and color of brick may be found in the Hy-tex line. Send for information to the nearest Branch.

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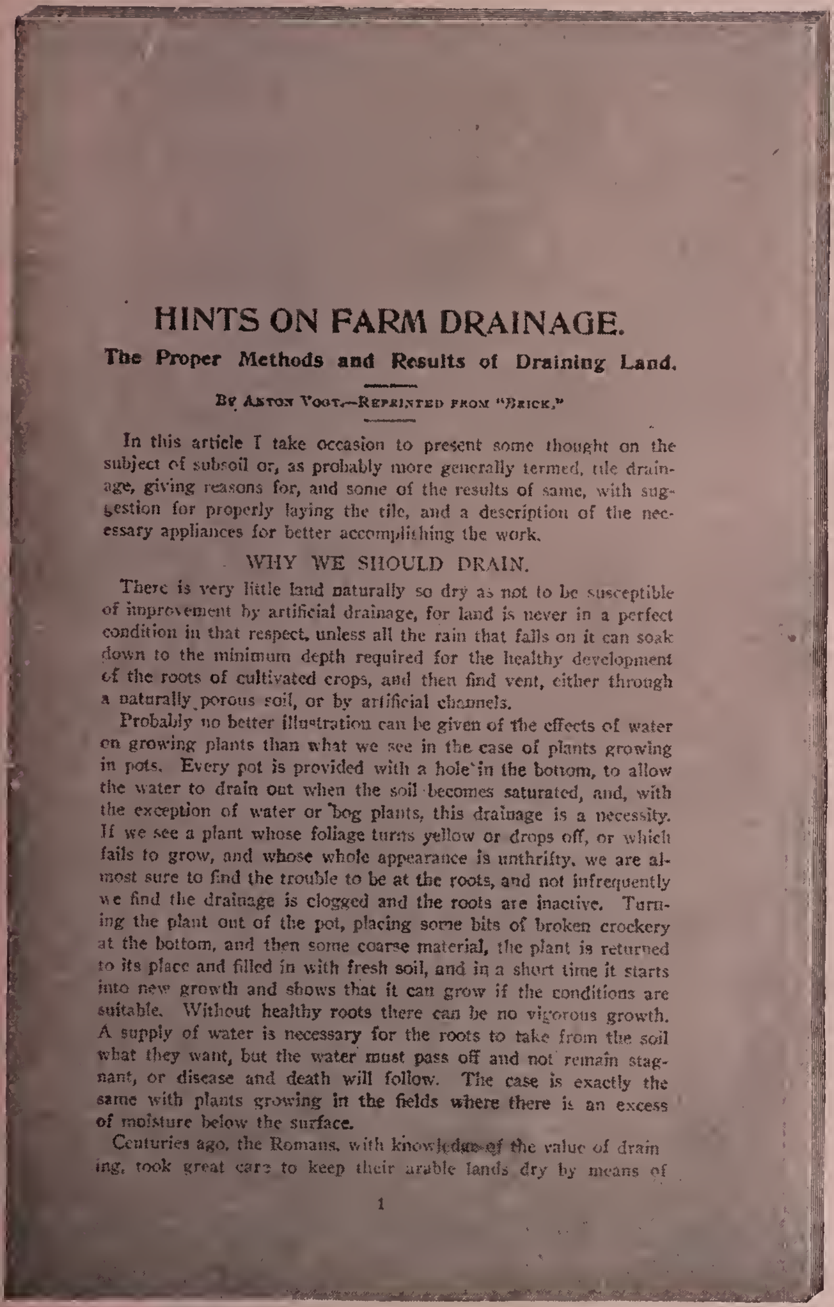

HINTS ON FARM DRAINAGE.

The Proper Methods and Results of Draining Land.

BY ANTON VOGT.—REPRINTED FROM "BRICK."

In this article I take occasion to present some thought on the subject of subsoil or, as probably more generally termed, tile drainage, giving reasons for, and some of the results of same, with suggestion for properly laying the tile, and a description of the necessary appliances for better accomplishing the work.

WHY WE SHOULD DRAIN.

There is very little land naturally so dry as not to be susceptible of improvement by artificial drainage, for land is never in a perfect condition in that respect, unless all the rain that falls on it can soak down to the minimum depth required for the healthy development of the roots of cultivated crops, and then find vent, either through a naturally porous soil, or by artificial channels.

Probably no better illustration can be given of the effects of water on growing plants than what we see in the case of plants growing in pots. Every pot is provided with a hole in the bottom, to allow the water to drain out when the soil becomes saturated, and, with the exception of water or bog plants, this drainage is a necessity. If we see a plant whose foliage turns yellow or drops off, or which fails to grow, and whose whole appearance is unthrifty, we are almost sure to find the trouble to be at the roots, and not infrequently we find the drainage is clogged and the roots are inactive. Turning the plant out of the pot, placing some bits of broken crockery at the bottom, and then some coarse material, the plant is returned to its place and filled in with fresh soil, and in a short time it starts into new growth and shows that it can grow if the conditions are suitable. Without healthy roots there can be no vigorous growth. A supply of water is necessary for the roots to take from the soil what they want, but the water must pass off and not remain stagnant, or disease and death will follow. The case is exactly the same with plants growing in the fields where there is an excess of moisture below the surface.

Centuries ago, the Romans, with knowledge of the value of draining, took great care to keep their arable lands dry by means of

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Size 5"x8". Contains 24 Pages

THESE BOOKLETS, liberally distributed among the farmers in your section, will educate them to use drain tile to a greater degree than ever before, for it is a valuable text book on farm drainage, by Anton Vogt, a recognized authority, and deals in an extensive way with every phase of farm drainage.

Thousands of these

Hints on Farm Drainage

have been used by drain tile manufacturers all over America, and if you have not tried them yet send for a sample copy today. After you have read it you will realize its value and order a quantity for distribution.

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SAY I SAW IT IN BRICK AND CLAY RECORD

TRADE MARK
Belden Brick
CANTON, OHIO

The Best Face Brick Made
Five Factories—All Colors

The Belden Brick Co.
Canton, Ohio

PORTAGE RUFFS
Sold in mixture. Dark reds blending with flashed brown make a wall of rich beauty.

We make common brick and hollow building tile also.

Agencies Solicited

Prices and Samples—as requested.

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FIRE-FLASHED
BRICK
VITREOUS
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It washes
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The Ironclay Brick

has long been recognized as the standard by which all other Flashed brick are measured. For Composition, Richness of Color and Durability it is without a peer.

Standards, Romans, Normans in seven colors in Stock.

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ALLIANCE RUG BRICK

Excel all other brick as to texture and beauty of coloring. The chromatic scale of colors runs through the beautiful Rug-texture faces of these brick, most of the brick showing **three** or **four** or **more** of the seven primary colors. One of the most popular sellers in America today.

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All Standard Colors and Sizes. Bright, Medium or Matt Finish. Agents in All Principal Cities.

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MFRS. OF FLOOR TILE
DOMESTIC QUARRIES

Promenade Tile—
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You, Too, Can Save Money On Your Drying

The "Wellington" Improved
Steam Pipe Rack Dryer

combines every possible Economy with the highest degree of Efficiency.

It's a Low Pressure Vacuum System—it's **first cost** is **lower** than any other dryer—it can be installed at **less expense,** and operated at a big saving in power and labor.

We will give you facts and figures to **prove it** or you can ask any of the following representative brick companies:

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American Bldg. Bk. C., Cleveland	30,000 capacity
Collingwood Brick Co., Toledo	35,000 capacity
Ohio Brick Co., Toledo	35,000 capacity
Walker & Frank Brick Co., Detroit	35,000 capacity
Farr Brick Co., Cleveland, H plant	120,000 capacity
Standard Brick Co., Cleveland	60,000 capacity
Owen Hatten, Brick Mfr., Phila.	25,000 capacity
Ithaca (N. Y.) Brick & Tile Co.	30,000 capacity

**If They Have Found It An Economy
So Will You—Ask Us More About It**

Read this and be Convinced:

Wellington Machine Co.,
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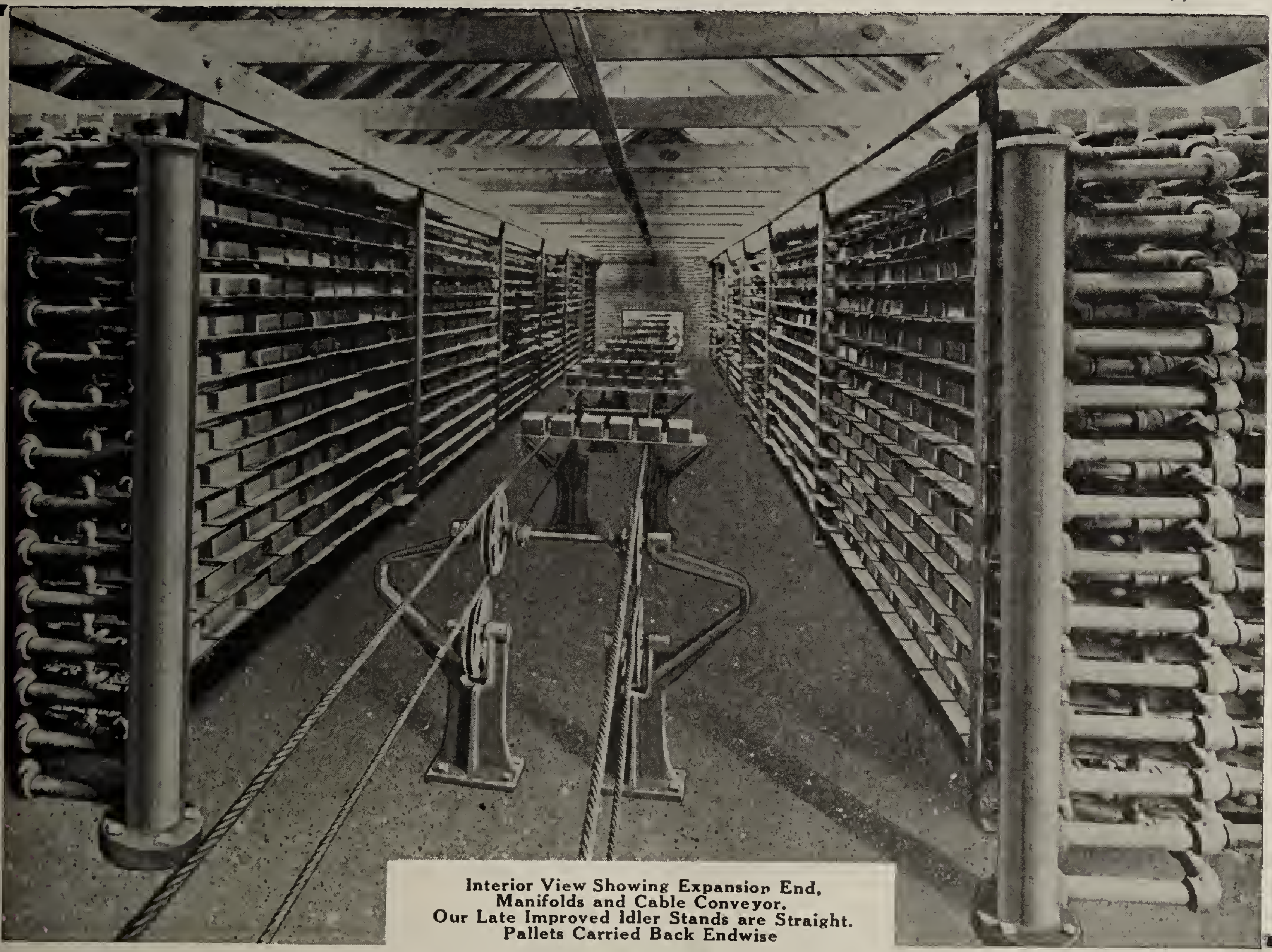
Have found your Dryer a **grand success.** We are having no trouble and are actually drying brick in this Dryer that does not cost us a cent. The Wellington Dryer is one of the best on the market.

THE OHIO BRICK CO.,
A. R. Kuhlman, Mgr.
Toledo, Ohio.

June 29, 1915.

**The
Wellington
Machine Co.
Wellington, Ohio**



Interior View Showing Expansion End, Manifolds and Cable Conveyor. Our Late Improved Idler Stands are Straight. Pallets Carried Back Endwise

SAY I SAW IT IN BRICK AND CLAY RECORD

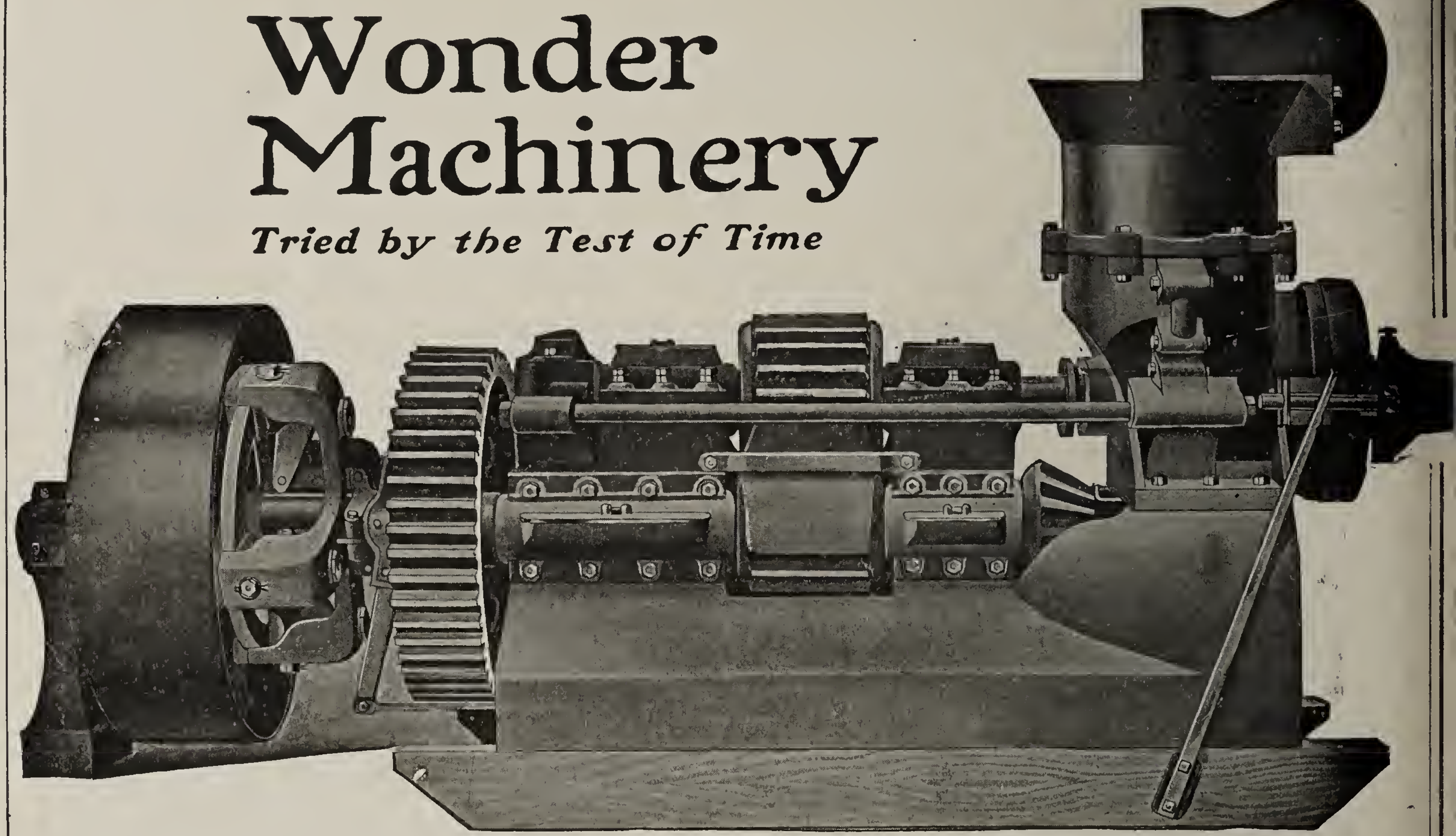
YOUR GOOD MONEY

can easily go to waste, through a little mistake in buying machinery. You can spend too much money for what less would buy; or you can buy that which will prove inefficient, unsatisfactory and undesirable.

You can secure the most value for your money in

Wonder Machinery

Tried by the Test of Time



Brick, Tile and Hollow Block Machinery of every description. Granulators, Pug Mills, Disintegrators, Crushers, Cutters, Dry Pans, etc. Write for catalog

Wonder Machinery saves operating costs, reduces repair bills and eradicates troubles. **Don't let the first cost worry you**

ASK US FOR PRICES NOW

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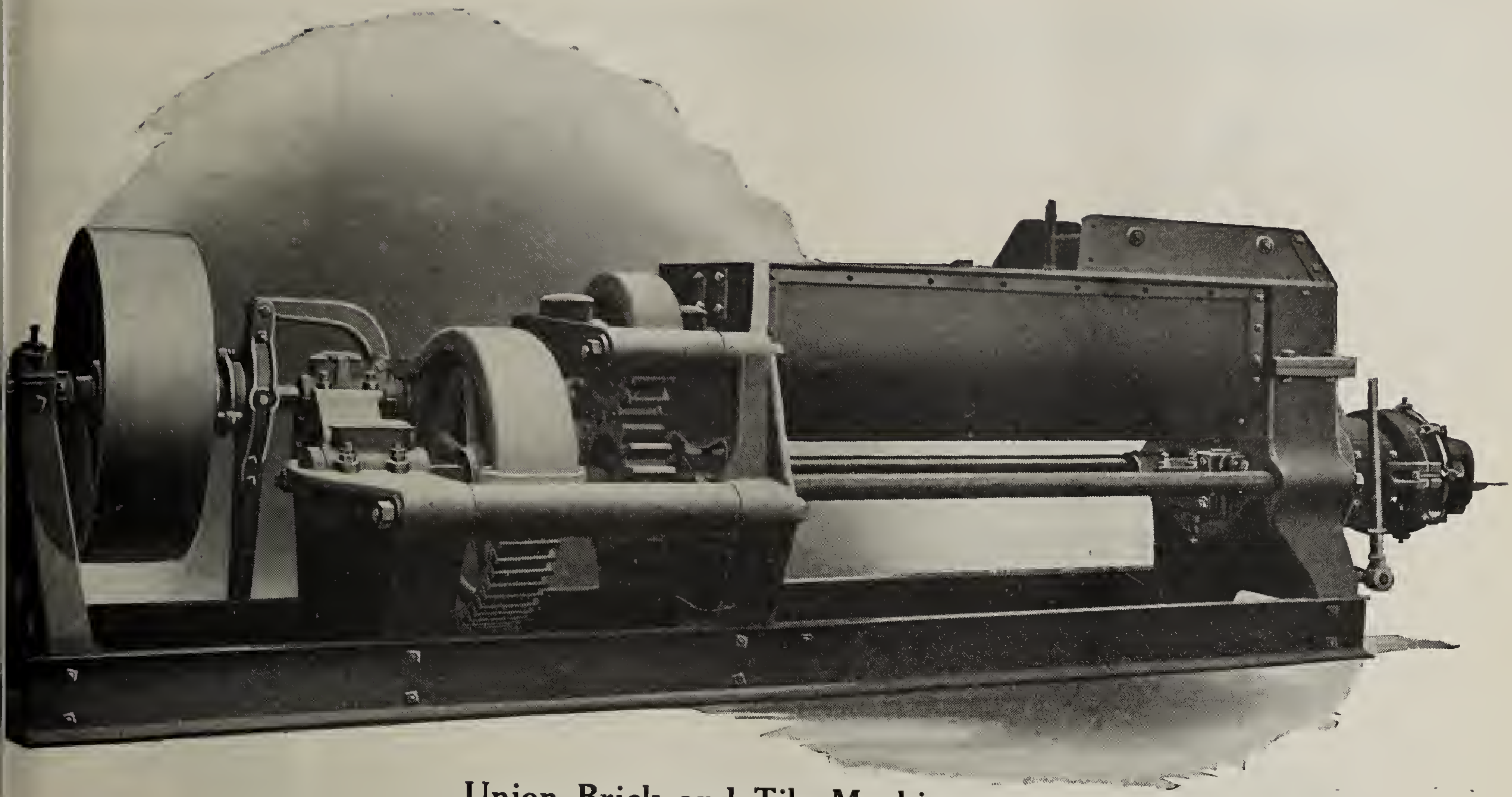


Union Brick and Tile Machine

Inexpensive to Install—
because it requires only one driving belt and pulley, and eliminates the structural work necessary to support a separate pug mill.

Economical to Operate—
because the one set of gears—all slow-moving—create less friction, require less repairs, and consume less power.

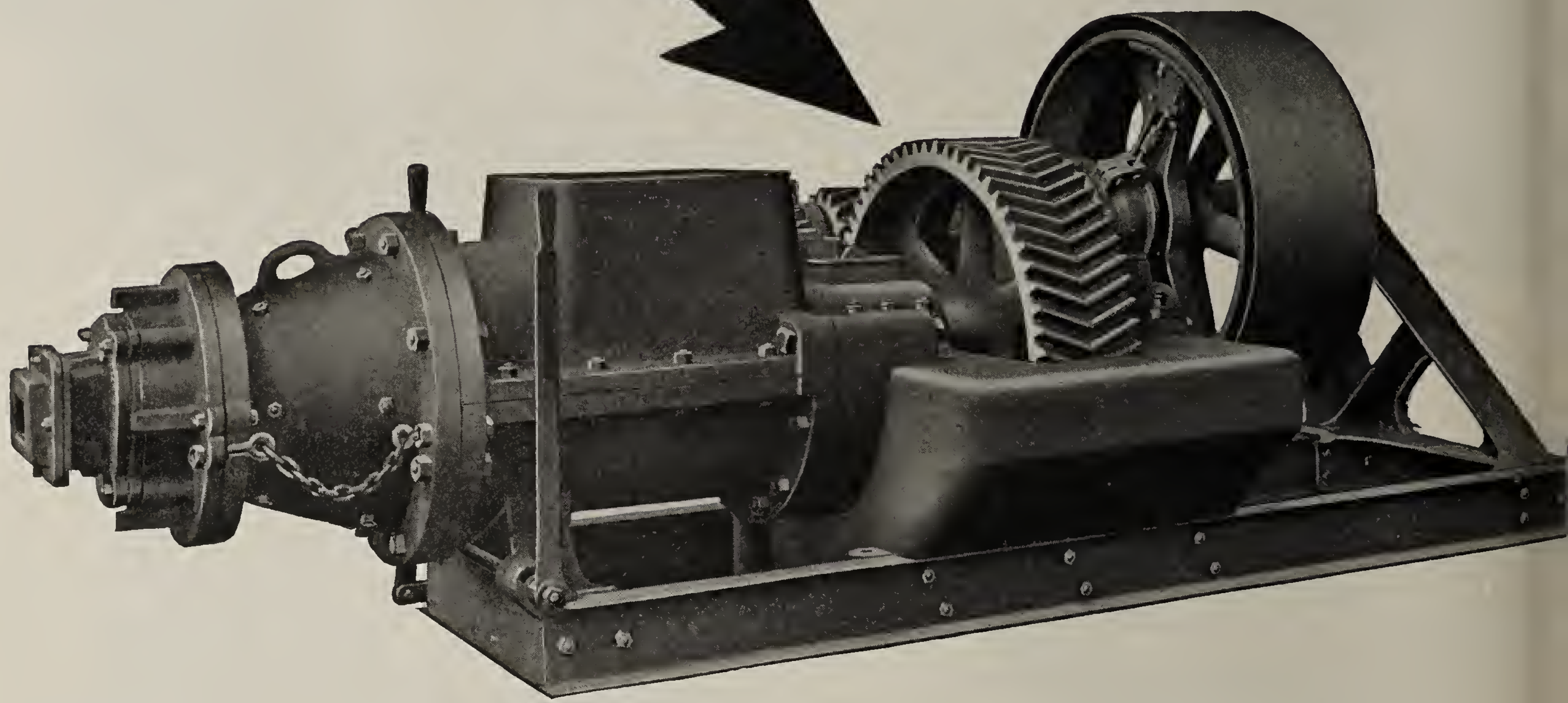
Convenient—
because the feeding point is only 4½ feet from the floor line, and surface clay can be fed direct into the pug chamber.

A thoroughly dependable machine with three features which have made it especially satisfactory where both brick and tile are manufactured. Folder 303 explains in detail.

E. M. FREESE & CO.
30 South Street GALION, OHIO
Dependable Machinery of Proven Efficiency

SAY "I SAW IT IN" BRICK AND CLAY RECORD

THE MACHINE WITH GEARS THAT ARE DIFFERENT



The Herringbone or double Helical gear is a type which has been the standard in steel rolling mills for many years. It was adopted there because of its strength, resistance to shocks and smooth running qualities. For the same reasons we have used it in designing our No. 18 Machine in addition to incorporating other up-to-date and desirable features. The gearing has 12-in. effective face. Both the gear and pinion are cast from high grade open hearth steel and are machine molded, making them next to machine cut gearing in accuracy. A neat dust-proof cover of sheet metal is provided, although not shown in illustration. This means that in this machine you get the very highest standard of gearing and complete protection from dust and dirt.

The frame of machine is a one-piece casting, which is of very rigid construction and is arranged with a reservoir so that the gears can be run in oil if desired. The auger chamber, drum and frame are machined at all joints; thus making perfect alignment of all the parts. The main shaft is hammered steel 6-in. diameter and countershaft 4½-in.

Capacity of this machine is 6,000 to 7,500 standard size building brick per hour.

SEND FOR PARTICULARS.

THE BONNOT COMPANY

CANTON, OHIO

909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—Setting foreman and kiln burner for fire-brick plant in Mississippi Valley. Both men must be experienced in the handling of abor and high-grade brick, including large special shapes. Excellent opening for two wide-awake, ambitious hustlers who can deliver. Applicants must state age, capacity now employed n and salary to start. All correspondence strictly confidential. Address: 11-E, care of "Brick and Clay Record." 11-1.

WANTED—Superintendent who can use his head, not his hands, and make thirty men hustle out drain tile with rotary clay dryer. Fate machine, steam dryer and Youngren kiln. Address: 11-N, care of "Brick and Clay Record." 11-1P.

WANTED—A man with experience in the sale of sewer pipe, paving brick and other clay products, to cover Iowa, Illinois, and Wisconsin territory. A position with a future for the right man. Address: 11-H, care of "Brick and Clay Record." 11-1.

WANTED—Superintendent brick works, one hundred thousand common brick daily. State salary with references. Address: 10BA, care of "Brick and Clay Record." 10-2-2P

WANTED—First-class sewer-pipe kiln setter. Will contract for setting and drawing to right party. Address: 10BE, care of "Brick and Clay Record." 10-2-2P

WANTED—Several pressed brick and rough-face brick sorters. Steady work, good pay. Address: 10BB, care of "Brick and Clay Record." 10-2-2

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs lose to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

PARTNER WANTED—Have a 17-year patent on a direct-firing continuous kiln. Will give right party one-half interest for enough money to carry on a successful demonstration, which would require about three thousand dollars. Twenty or thirty thousand dollars can be made each year with little effort. Address: 11-A, care of "Brick and Clay Record." 11-1P.

WANTED—POSITIONS.

SITUATION WANTED—By a man who thoroughly understands the clay business from pit to office, including the selling, and also thoroughly understands the manufacture of high-grade face brick, fire brick, common brick, sewer pipe and fireproofing, also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of dryer troubles and kiln troubles. A first-class handler of labor to get results. Wants to get with a concern where ability will be recognized. Address: 8-R, care of "Brick and Clay Record." 8-TF.

POSITION WANTED—As, superintendent, practical and experienced in all branches of clay products. Building, paving, fire, common and hollow brick. All processes. Address: 11-D, care of "Brick and Clay Record." 11-1P.

POSITION WANTED—Practical superintendent of brick and tile work of wide experience wants position with good firm. Good reference. Might buy some stock. Correspondence confidential. Address: 10BD, care of "Brick and Clay Record." 10-2-1P

WANTED—Situation as superintendent or manager of clay plant. Thoroughly understand operating and erecting up-to-date plants, manufacturing all classes of brick and building tile. Very best references. Address: 11-W, care of "Brick and Clay Record." 11-2P.

WANTED—EQUIPMENT

WANTED—Second-hand dryer cars, 28-inch gage. Give full particulars in first letter. Address: 11-R, care of "Brick and Clay Record." 11-1

WANTED

WANTED—Location for tile plant somewhere west and north of Chicago, Illinois. Must be good clay or shale and close to railroad. Address: 10-BH, care of "Brick and Clay Record."

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—Complete sand-lime brick plant, 20,000 capactiy, including Corliss engine, Boyd 4-mold brick press, situated in Eastern New York. Everything modern and in good condition. Low price. Wickes Brothers, Jersey City, N. J. 11-2.

FOR SALE—CLAY LANDS.

FOR SALE—Brick manufacturing plant in Central North Carolina. Thoroughly equipped and up-to-date with 40 acres of clay—railroad trackage. Address: Salisbury Brick Co., Salisbury, N. C. 11-1.

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE AT YOUR OWN PRICE.

1 Frost engine, 85 h-p.
1 Frost boiler, 120 h-p.
1 Freese pugmill.
1 Freese disintegrator.
1 Freese drum hoist, 300 ft. cable, 1.5 ft. Buffalo fan.
3,000 ft. T rails, 2 dump cars.
24 steel bands for four 36 ft. down-draft kilns, also doors, grates, etc., in good shape, used but very little. Equipment all in good order.

G. H. Wenner, Minden, Nebr. 10-3-P

FOR SALE CHEAP—Four-ton Whitcomb gasoline motor for hauling clay cars. Thew ⅝ yd. steam shovel, Clearfield 9 ft. dry pan, Berg 4-mold dry press, Freese No. 1 brick machine with automatic cutter, Freese largest size automatic cutter, Stevenson 8 ft. wet pan, Arnold-Creager brick machine, Chambers 10 ft. pugmill, Blake 9x15 in. jaw crusher. The above machines are all in good running order and much of it run only one season. C. H. Horton Co., Painesville, Ohio. 10-1

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—One No. 2 Giant brick machine, one double shaft clay feeder pug mill, American make No. 247. Also one generator and motor. All in perfect order. No reasonable offer refused. Ohio Clay Product Co., Salineville, Ohio. 10-2-2

FOR SALE—777 Raymond stiff-mud machine, repress and semi-automatic cutter, good as new, price very low. 20x27 horizontal heavy-duty Corliss Russell engine. Two horizontal tubular boilers 72x18; 6x8 horizontal high speed automatic cut-off engine. Address: 11-C, care of "Brick and Clay Record." 11-2.

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—Two 90 h.p. gas engines at $225.00 each. These engines are practically new, equipped with magnetos. Must be moved immediately. Topper Bros., Columbus, Ohio. 11-3.

FOR SALE—Type 0 five-eighths cubic yard Thew shovel. Late type—high shop number. First-class condition. Good bargain. Address: 11-B, care of "Brick and Clay Record." 11-1.

FOR SALE—200 tons good used 25 lb. rail. Will sell any quantity at $20.00 per ton. Also 65 lb. and 80 lb. rail. Topper Bros., Columbus, Ohio. 10-2-3

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

RAILS

all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.

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Trade Marks Registered.
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Established 1895.

HUBERT E. PECK.
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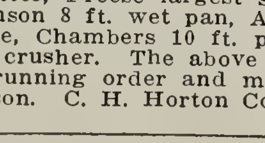
Continued on Page 722



The Wise Man of FATE

“The Plymout
Cheaper than

It costs less to buy—less to install—less to operate, than other power. We make these three statements without qualifi tions or mental reservations—and they are printed here with the confidence and assurance born of a knowledge based ACTUAL Experience and the RECORDS of Time.

We Make These Six Claims and Prove The

1 It will do **Your** Haulage **Cheaper** and **Better** than Man, Horse, Compressed Air, Electric, Steam or Any Other **Gasoline** Locomotive.

2 Its **Fuel** Cost is **Less** than the Feed Cost of Horses—Power for Power, Duty for Duty—**Less** than the Fuel Cost of Steam, Compressed Air, Electric or Any Other **Gasoline** Locomotive.

3 Its **Operation** and **Maintenance** Cost is **Less** than a Horse, Steam, Compressed Air, Electric or Any Other **Gasoline** Locomotive.

4 It is **Simpler** in **Operation**, is Fool-Proof and Does Require a Licensed Engineer, Electrician, Mechani Other High-Priced Help to Keep it in Running Order.

5 It will Take a Higher **Grade**, Pull a Heavier Load Horse Power and Do More **Work** than Any Other Loco tive—whether Steam, Compressed Air, Electric or Gaso

6 It Costs Less to **Buy**—Less to **Install**, than any O Locomotive—whether Steam, Compressed Air, Electri Gasoline.

Here is WHY These Six Claims are True

Claim No. 1

It Will Do YOUR Haulage Cheaper and Better, Because—

It Uses Gasoline—the most economical of ALL Fuels.

It uses the “Plymouth” Friction Drive, which gives **more** power, a greater **flexibility** of operation, a **limitless** number of speeds—the same forward, the same backward, a quicker **pick-up** of loads, and a greater freedom from **jerks** and **strains**, than does **any other** system of transmission.

Claim No. 2

Its Fuel Cost is LESS than Any Other Locomotive Because—

It uses **Gasoline** and it does it in the **“Plymouth”** way—

And the **“Plymouth”** way of using it makes gasoline cost less in the “Plymouth” than in any other **gasoline** locomotive.

Claim No. 3

Its Operation and Maintenance Cost is Less, Because—

It requires no feed or care in idle hours or on rainy days, as do the many teams of **horses.**

It requires no time-off to haul coal and water, no licensed engineer to run it, no Sunday work at double pay to clean its flues, no early morning effort to get it started, nor late night labor to “put it to bed,” as does the **steam** locomotive.

It requires no expensive high-pressure air-compressing plant, no intricate system of air pipe lines, nor frequent interruptions to recharge, as does the **compressed air** locomotive.

It requires no expensive generating plant, no elaborate system of transformers, feed wires, cables or trolley wires, nor interruptions for recharging or renewals for storage batteries, as does the **electric** locomotive.

It has no expensive gear drive to get out of order or break, no elaborate lubrication system to maintain its highest efficiency, no complicated construction to encourage repair bills, and no light steel frames to cut down traction power, as does **all** other **gasoline** locomotives.

Claim No. 4

It is Simpler in Operation than Any Other motive, Because—

It has no water or steam gauges to watch, no fires to going, no flues to clean and no complicated levers to pu set, and, therefore, requires no licensed engineer, as does **steam** locomotive.

It has no deadly wires to dodge, or avoid, no short-circ to puzzle, no complicated parts to confuse, and, therefore, quires no experienced electrician, as does the **electric** loco tive.

It has no airtanks or gauges to watch, no complicated m anism to bother with, no troublesome and time-killing rech ing at “the station,” and, therefore, does not require an pert” to run it as does the **compressed air** motor.

It has no complicated clutches to operate, no multitudi gears to manipulate, no differentials to think about, no puzz levers to set, and, therefore, does not require an “expert” run it, as does **all other** gasoline locomotives.

Claim No. 5

It will Take a Higher Grade and Pull a B Load, Because—

It has a heavy two-piece cast iron frame instead of a l steel built-up frame, and therefore, possesses greater trac power than any steam, compressed air, electric or any o gasoline locomotive.

Claim No. 6

It Costs Less to BUY and Less to INSTALL cause—

It is simpler in construction, has no expensive gears or tra mission, requires no wires, trolleys, cables, transformers or g erating plants, nor an air-compressing plant or system, nor of the excessive overheads so necessary for all other lcomot to put it into service.

Naturally, You Do Not Believe Us—

We expect that—because our statements **seemingly** are strong ones, to say the least, and we know that YOU kn that manufacturers are prone to be over-enthused about their products. And so, we say to you, DO NOT TA **OUR** WORD—TAKE THAT OF SOME DISINTERESTED CLAYWORKERS! You'll believe them, won't y

SAY “I SAW IT IN” BRICK AND CLAY RECORD

,ocomotive Hauls Clay
' Other System-

THESE CLAYWORKERS PROVE OUR CLAIMS

"Plymouth" at Work for the E. Biglow Company

"Plymouth" At Work for the Alliance Clay Products Co.

Iere are two disinterested clayworkers who have bought, installed and operated "Plymouth" Locomotives. 'hey OUGHT to know whether what we've said is true. Note carefully the **bold face** portions of these etters and see how truthfully we have spoken.

?ead What This User Says:

The **friction drive eliminates all jerking** and the danger of smashing the men's fingers, r the driver **can start as easy as he wishes,** which cannot be done with the gear-driven comotive, because it starts with a jerk. The **friction fibre** is an **inexpensive item in** pairs, as we had one in use for **four years,** and it was, apparently, in **good shape** and ould have run a considerable time.

Our **repair bills** on The Plymouth in the ten months we have had it have been pracally **nothing.**

As a **load puller** The Plymouth **has pulled ten cars of one and one-half yards each, and d it with ease.** The **cars weighed 46,000 lbs. net.** We do not know whether it would ill more or not, for that is all the cars we have. These cars have four 12-inch wheels, me of them in not any too good shape. The track is 16-lb. rails.

It **costs us $2.30 a day for a common laborer to run The Plymouth,** and we have **less eakdowns** and **use less fuel** than we did with our former locomotive—a gasoline engine." We consume about **five gallons** of gasoline per day and use about **3-4 pt. of oil.** This about the same amount of gasoline we formerly used, but less lubricants, but we get **ore work** out of The Plymouth for the fuel.

Ve consider The Plymouth the **cheapest form of power**—not excepting **horses, steam** or **y other** locomotive, and our frank opinion of the Plymouth Friction Drive is that it is **r ahead** of any gear-driven transmission. We consider The Plymouth one of the **best** vestments we have made, for it has **given us little trouble** and the repairs are **practically thing.**"

—The E. Biglow Company,
New London, Ohio.

Read What This User Says:

"It **takes less work to care for The Plymouth** than did the **steam locomotive** we had, for we do not have to **spend extra time Sundays cleaning the flues out,** nor **extra time weekdays to keep it in repair.** Nor do we have to get up **early in the morning to get it ready to start out**—for which we would have to pay a man, **as we did with the steamer,** to fire-up and raise steam. With our **steam locomotive** it was **necessary to run in for water and coal several times** during the day and this requires time. The work of filling the gasoline tank is comparatively small compared with water and coal.

"The 'Plymouth' uses an average of **six gallons of gasoline per day** against **one-third of a ton of coal** our steam locomotive used, and it does **better work** with **less fuss and bother,** is much **cheaper to operate** in every way."

—The Alliance Clay Products Co.,
Alliance, Ohio.

ɔw You Have the Proof
'hat Is Your Verdict?

We've made certain statements of claim for "The Plymouth," we've told WHY these claims rue and we've PROVED they were true by giving you the TESTIMONY of actual users.

e "Plymouth" will do these things for others, is it not reasonable to suppose it will do equally as much for It is worth while, at least, investigating, is it not?

Have a Big Book of Facts
' Ought to Have

Every piece that enters into the construction of "The Plymouth" is fully described in this book—

'lymouth" principle is laid carefully before you in text and illustration—

a book you truly ought to see. The coupon at the right—or a post-card will bring this book.

you wish, our engineering department will make you a proposal, with an estimate of the saving "The Plymouth" will give u state your haulage conditions.

ıe J. D. Fate Company

240 Riggs Ave.
Plymouth, Ohio

The J. D. Fate Company
240 Riggs Ave.
Plymouth, Ohio

Send us "The Plymouth FREE Book of Facts." This does not obligate us in any way:

(Firm Name)....................
(Signed by)....................
(City) ....
(Street) ....
(State) ....

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Brick and Clay Record Classified Ads Are Result Producers

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

DO YOU **WANT** An Employee? A Position? To Buy Anything?

HAVE YOU **FOR SALE** Used Machinery? Land, Plant or Anything Else?

"Brick and Clay Record" Advertisements Bring Returns

RAILS

SMALL ORDERS GIVEN SPECIAL ATTENTION

40, 56, 60, 70, 75, 80, 85 & 90 lb.

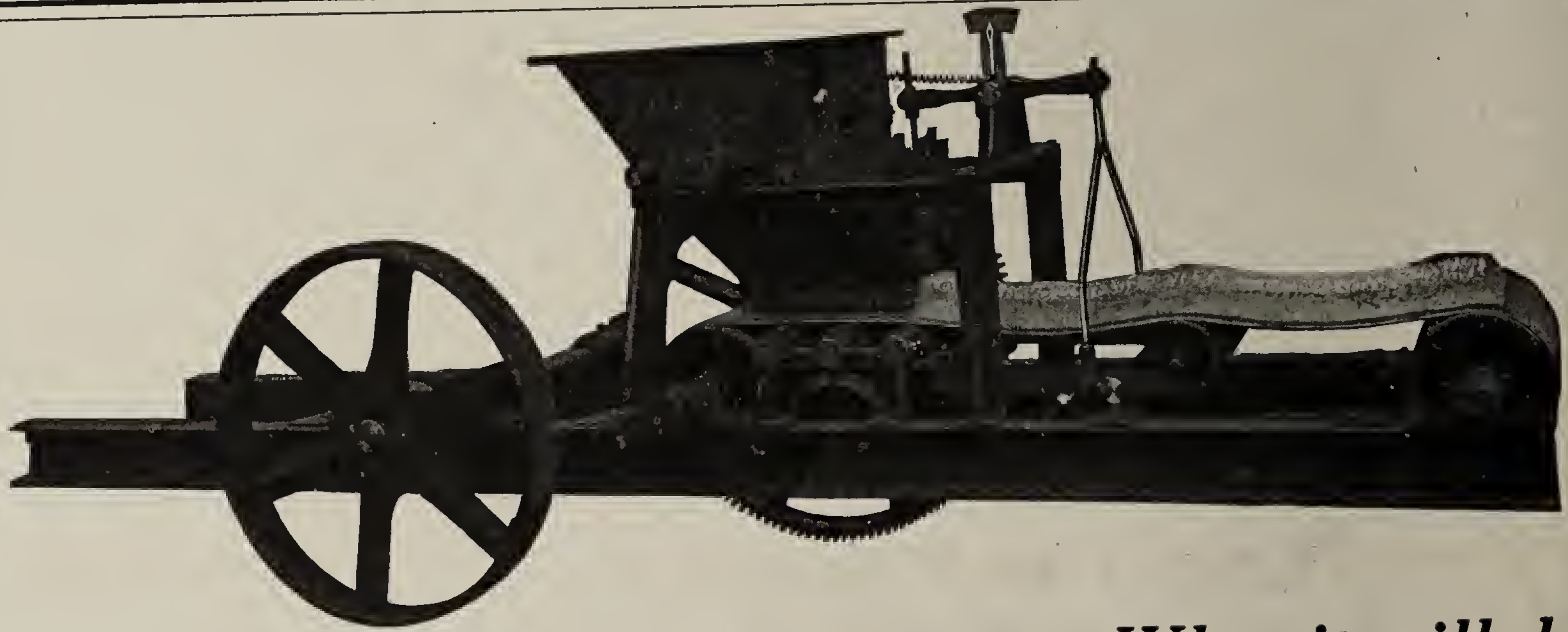
RELAYING RAILS
FOR SIDINGS, SPURS, Etc.

8, 12, 16, 20, 25, 30, 35, 40 & 45 lb.

NEW STEEL RAILS
FROGS AND SWITCHES

SECOND-HAND Rails, cut to any length desired, for BRACING, UNDERPINNING, LINTELS, concrete REENFORCING, BUCKSTAVES. All kept in stock for quick shipment

RICHARDSON & CO., Inc.
1103 Bessemer Bldg.,
PITTSBURG, PA.
RAIL DEALERS



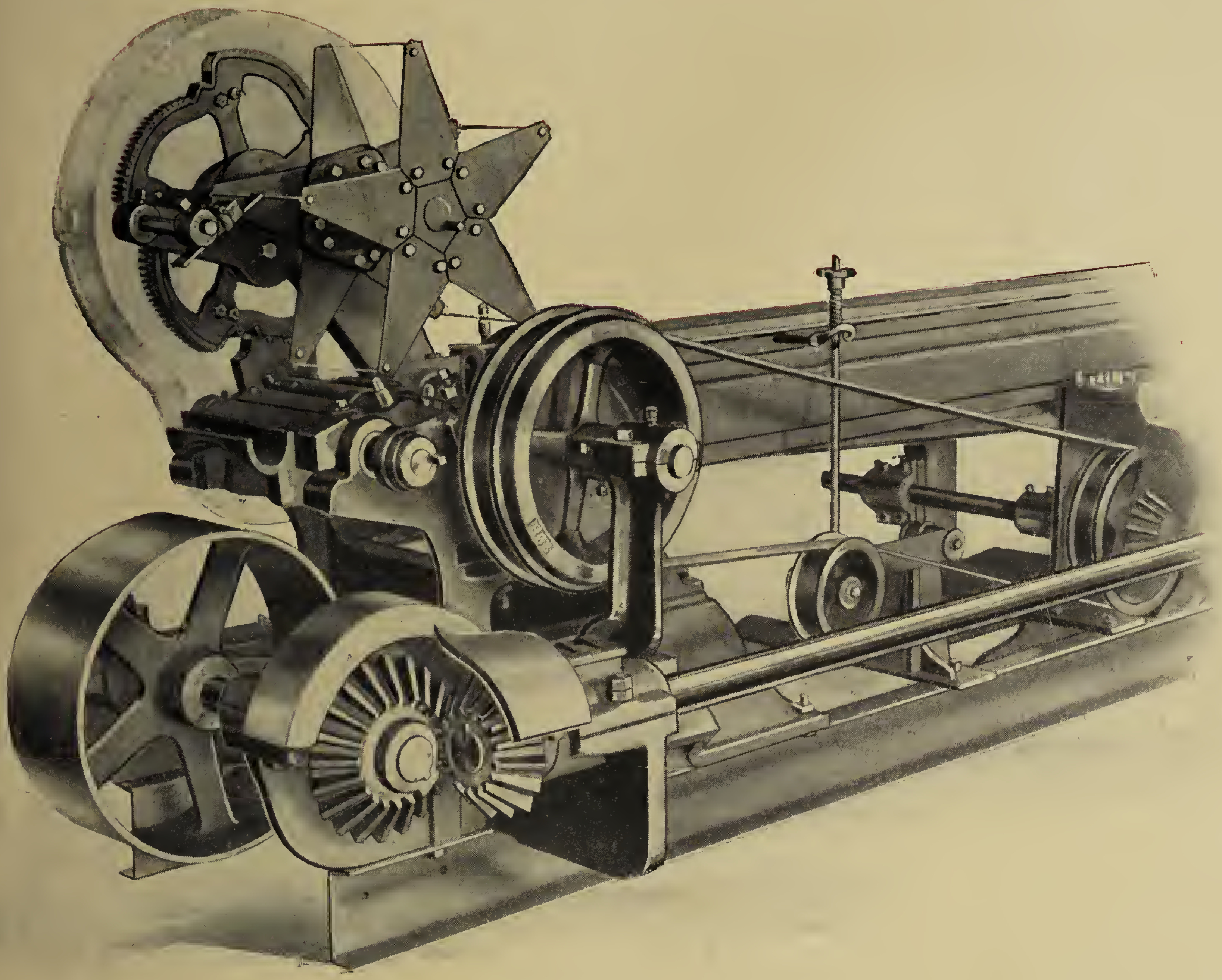
The Schaffer Poidometer—*What it will do*

It Will
- —unite any number of materials in correct proportion.
- —deliver them to pug mill at a predetermined number of pounds per minute.
- —deliver water at a predetermined number of pints per minute.
- —produce a clay column evenly tempered, of absolute uniformity.
- —do this—and it eliminates the pug mill man.
- —reduce cracking, because the dry house man knows the material.
- —reduce burning loss, because the burner can always produce the same color and hardness.
- —pay for itself in one season by reduction in labor alone.
- —produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

Consider the Advantage in Straight Cut Brick



You have certainly heard of the perfect work of the Steele End Cutter.

Did you ever see a cutter so simple and reliable looking?

If you have any doubts about the superior principle or workmanship of this cutter frankly ask us to show you.

Will handle the largest capacities. Will work with any machine.

Nearly a thousand in use.

Would you like your competitor to put in this cutter first?

J. C. STEELE & SONS, Statesville, N. C.

George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.

KILN TEMPERATURES
PERFECTLY CONTROLLED

is a composite condition. It is the product of one variable and one constant — your head burner and our pyrometer.

No matter how good your head burner is (or how poor) he can become more expert—more efficient — more interested in his job, if he has your co-operation to the extent that you furnish on your plant—for his use—a precision heat indicating and recording instrument.

The State Highway Commission of Ohio, this year awarded to the Newburgh Brick and Clay Co., of Cleveland, Ohio, the highest prize for the quality of its paving brick.

Mr. J. R. Zmunt, Secretary, says in part regarding the Beighlee pyrometer:

"We have used the Beighlee pyrometer for two years—the results obtained have been most gratifying — we have been enabled to obtain a higher grade of product in our pavers — our Superintendent says: 'This Beighlee system has been of untold value to him, and he would not be without it.' "

BEIGHLEE PYROMETERS

whether indicating instruments, or multiple recording for more than one kiln—are precision instruments.

"Built-in" ruggedness is a feature—in which especial attention is given to needle suspension and pivot—that the indicating needle would be both rugged and delicately accurate.

High resistance (over 1200 ohms) is a feature. This makes negligible all variations in line resistance, increasing accuracy.

Leveling unnecessary on indicating instruments—another feature. Obviously an advantage in yard work.

Information on other advanced features—is yours—by asking—the

BEIGHLEE ELECTRIC CO.
CLEVELAND, OHIO

BRICK and CLAY RECORD

NOV 19 1915

THAT'S THE PYROMETER I WANT!

BECAUSE .. *it is always accurate and I can depend on it - if it should get out of order I can adjust it in from ten to twenty seconds and prove the adjustment correct. It is built rugged and serviceable for clay plant use. The internal resistance of over 1200 ohms makes line resistance a negligible item*

THE BEIGHLEE PYROMETER

— has demonstrated that it is all of this — and more. — If I had it I could do as the other burners are doing who are using it. I, too, could raise my heats uniformly with no loss. I could reduce the burning time three days on each of our burns — and I could produce 95 % firsts with twenty per cent less fuel — for that is what John H. is doing since he got his Beighlee — and I want it — I need it — will you get it for me?

THE BEIGHLEE ELECTRIC CO.
CLEVELAND OHIO

Vol. XLVII, No. 10 Chicago November 16, 1915

It makes no difference

whether you want to screen your material, elevate, store or convey it or transmit power to various units

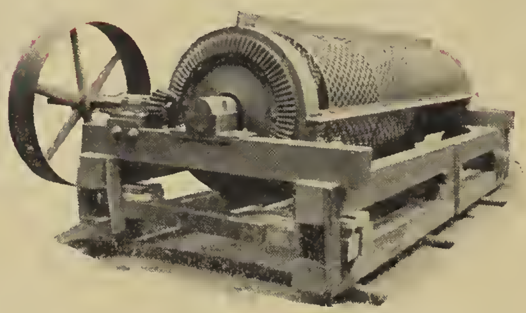
When you want any such equipment, there is just one place to send your orders and more Brick and Clay Workers are finding this out every day.

You may fool them once but when they keep sending repeat orders it proves that you are treating them right.

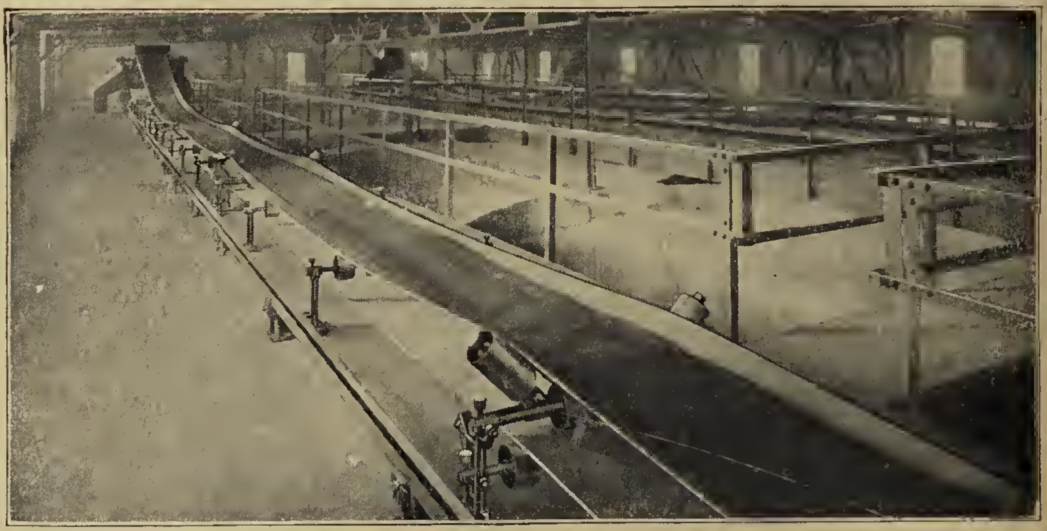
SPECIFY WELLER-MADE INSIST ON

Screens

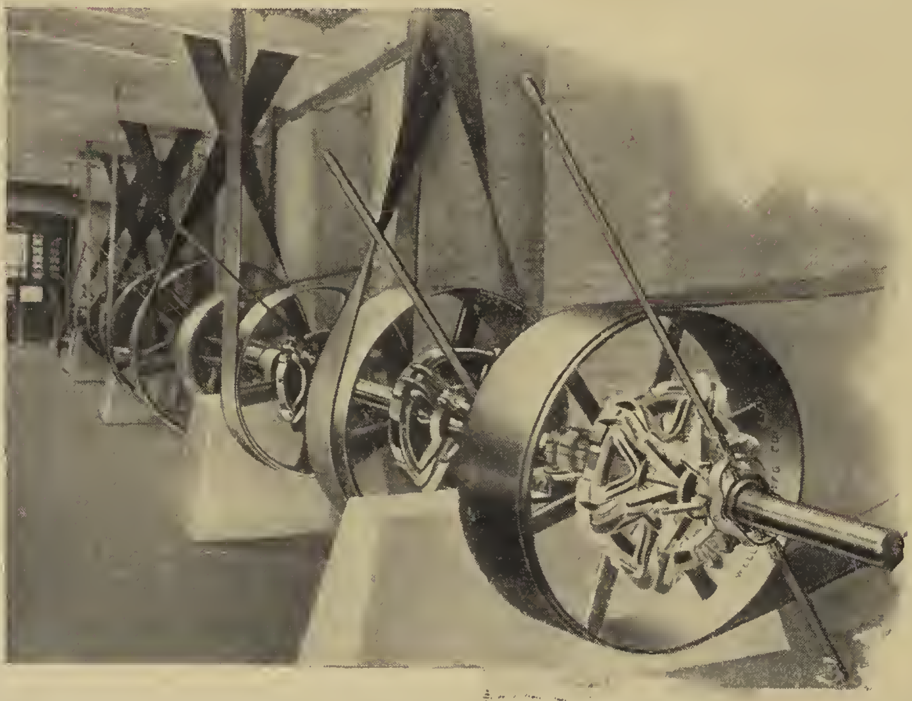
Open or Encased



Revolving, Shaking or Stationary.



Belt Conveyors—Storage System.



Line Shaft Equipment. Every pulley fitted with Friction Clutch.

Elevators. Any Material—Any Size.

Elevating, Conveying and Power Transmission

Weller Manufacturing Company, Chicago

NEW YORK
50 Church St.

BALTIMORE
Garrett Bldg.

AKRON
10 W. Buchtel Ave.

ST. LOUIS
710 Railway Exchange

DALLAS
711 Main St.

SAN FRANCISCO
316 Rialto Bldg.

TRAUTWEIN-IZE

YOUR PLANT AND MAKE IT GIVE YOU INCREASED EARNINGS

TRAUTWEIN DRYING APPARATUS is built to meet requirements, not a price. It is the most economical, durable and efficient of any equipment used.

TRAUTWEIN DRYING SYSTEMS are the result of years of practical drying experience.

TRAUTWEIN METHODS are not experiments.

It will pay you to correspond with us.

Trautwein Dryer & Engineering Co.

Manufacturers of Drying Equipment
ENGINEERS—
417 South Dearborn St. CHICAGO

BURNING KILNS

DESIGNED AND BUILT BY EXPERTS IS OUR SPECIALTY

Let Us Send You Our Literature

Claude Smith Company

Kiln Builders

Plymouth Building, Chicago, Ill.

Service to Clayworkers

Alliance Brick Co. P- 8
Alliance Clay Pro. Co. P- 5
Alsey Brick & Tile Co. P- 3
Alton Brick Co. P- 4
American Blower Co. 731
American Clay & Cement Corp. P- 8
American Enameled Brick & Tile Co. P- 8
American Process Co. 793
Ambursen Co. 796
Atlas Car & Mfg. Co. 775

Baird Mach. & Mfg. Co. 774
Baldwin Loco. Wks. 773
Barr Clay Co. P- 4
Big Four Clay Co. P- 6
Bessemer Limestone Co. P- 5
Bradford Pressed Bk. Co. P- 6
Broderick & Bascom 777
Brown Instrument Co. 769
Bruce-Macbeth Eng. Co. 770
Buckeye Rolling Mill Co. 767

Canton Grate Co. 775
Carlyle Paving Bk. Co. P- 6
Ceramic Sup. & Cons. 777
Chamberlin Hotel 796
Chambers Bros. Co. 733
Chase Fdry. & Mfg. Co. 793
Chicago Brick M. Co. 779
Chicago Retort & Fire Brick Co. P- 4
Cincinnati Frog & Switch 770
Classified Ads 798
Cleveland Alloys Co. 767
Cyclone Grate Bar Co. 778

Davenport Loco. Wks. 770
Danville Brick Co. P- 5
Davis Fire Brick Co. P- 3
Deckman-Duty Brick Co. P- 4
Dewey Bros. 766
Dry Kiln Door Carrier Co. 769
Dover Fire Brick Co. P- 3

Eagle Iron Works 768
Eastern Machy. Co. 800
Englehard, Chas. 766
Evans Clay Mfg. Co. P- 3

Gabriel & Schall 766
Gandy Belting Co. 781
Gerlock, H. W. 766
Globe Brick Co. P- 6

Hardinge Bros., Inc. 768
Harris Brick Co. P- 6
Hendrick Mfg. Co. 769
Hinde & Dauch 769
Hocking Valley Bk. Co. P- 5
Hocking Valley Pro. Co. P- 8
Hook Patent Kiln Co. 780
Hydraulic-Press Bk. Co. P- 6
Illinois Sup. & Cons. Co. 776

Jackson & Church Co. 771
Johns-Manville Co. 799

The Courage of Our Convictions

During the past week the Advertising Department of "Brick and Clay Record" has been compelled to advise more than a score of manufacturers that their products could not be successfully advertised in these columns.

We make this statement here because we believe it will impress upon you more than anything else could, the extent to which we will go in our desire to serve our readers well.

We want only such products and methods advertised in our columns as will be of interest and help to manufacturers of clay products. Therefore you may be sure that whatever message is conveyed to you through this medium, it must be something that will appeal to you with favor.

The progressive manufacturers of clay products read carefully and absorb the advertising in every issue. That's the reason they continue to progress.

Standards of Practice for Business Papers

1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Keller Brick Co. P- 8
Kimbell, S. S., Brick Co. P- 8
Kissel Motor Car Co. 782

Lehigh Portland Cement 772
Link-Belt Co. 732

Main Belting Co. 729
Manufacturers Eq. Co. 779
Marion M. Fdry. & S. Co. 771
Marion Steam Shovel Co. 776
Mathews Gravity Carrier 795
Maurer & Son, Henry P- 3
Mexico Bk. & F. Clay Co. P- 3
Metropolitan Pav. Bk. Co. P- 5
Murphysboro Pav. Bk. P- 4
Murray Iron Wks. Co. 771

National Paving Brick Mfrs. Assoc. 775
Newman Clock Co. 766

Ohio Gal. & Mfg. Co. 793
Osgood Co. 793

Pettigrew Foundry Co. 772
Philadelphia Textile Machy. Co. 735
Pittsburgh Tile Mfg. P- 8
Preetorius, I. W. 766
Price Electric Co. 770
Purington Pav. Bk. Co. P- 6

Roessler & Hasslacher 777

Sander Instrument Co. 768
Sawyer Belting Co. 797
Scandinavia Belting Co. 736
Schaffer Eng. & Eq. Co. 797
Schofield-Burkett Cons. 734
Schultz & Son, A. L. 775
Shawmut Pav. Bk. Co. P- 6
Smith Co., Claude 727
Soisson Fire Bk. Co. P- 3
Southern Fire B. & C. Co. P- 3
Standard Dry Kiln Co. 792
Statler Hotels Co. 773
Sterling Brick Co. P- 4
Stock Xylite Grease & Oil Co., G. B. 766
Stupakoff Laboratories 771

Taylor Instrument 767
Terre Haute Vit. Bk. Co. P- 4
Thew Auto. Shovel Co. 781
Thwing Instrument Co. 774
Trautwein Dryer & Engineering Co. 727

United Brick Co. P- 5

Walton School of Commerce 777
Webb Wire Works 767
Weller Mfg. Co. 726
Westinghouse El. & Mfg. 795
Woodhouse Chain Wks. 768

Untrue or exaggerated statements in advertising may usually be traced to inferiority in the product advertised

Permanent success in business can only be built around Truth and Merit

LEVIATHAN BELTING

Is 35 years olds, and each succeeding year finds it in more plants of reasoning men

"Hook 'er to a Leviathan!"

Main Belting Company

Manufacturers and Engineers

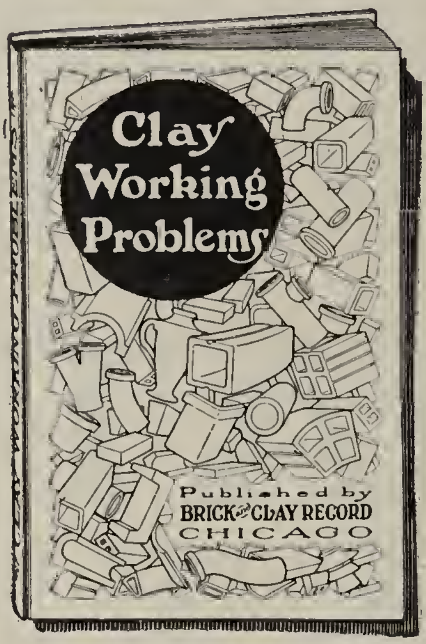
Philadelphia
Pittsburgh
New York
Seattle
Chicago
Birmingham

Main Belting Co. of Canada, Ltd.
Montreal Toronto

Send for Booklet No. 2 on Conveying

Book Department

Bibliography of Clay and Ceramic Arts (Branner)	$2.00
Bricks and Tiles (Dobson)	$1.20
Brick Drying (English Edition)	$1.00
Brick Houses and How to Build Them (Radford)	$1.00
Bricklaying, Rudiments of Practical (Hammond)	60c
Bricklaying System (Gilbreth)	$3.00
Brick Work (Walker)	60c
Brickwork and Masonry (Mitchell)	$3.00
Bungalows, Camps and Mountain Houses (Comstock)	$2.00
Cement, Concrete and Bricks (Searle)	$3.00
Ceramic Calculations (Jackson)	$1.20
Clay and Pottery Industries (Mellor)	$4.50
Clays: Their Occurrence, Properties and Uses (Ries)	$5.00
Clay Glazes and Enamels (Griffen)	$5.00
Clays, Tables of Analyses (Crossley)	$2.00
Clayworker's Handbook (Searle)	$2.00
Economies in Brickyard Construction and Operation (Lovejoy)	$1.00
Effect of Heat Upon Clays (Bleininger)	$2.00
Engines and Boilers (Watson)	$1.00
Engineering for Land Drainage (Elliott)	$2.00
Estimating and Contracting (Radford)	$2.00
Garage and Motor Boat Houses	$1.00
Glazer's Book (Raes)	$1.00
Handbook of Steam Shovel Work	$1.50
Hollow Tile House (Squiers)	$2.50



Cloth bound, 184 pages 5x7.........$1.50

IN TWO YEARS more than six hundred clayworkers have submitted their manufacturing problems to the Questions and Answers Department of "Brick and Clay Record." A careful selection has produced one hundred and one that were of general interest and of general value.

These have been edited and are published, together with solutions given by the best authorities in the various branches of the industry.

The book which contains them is called "Clayworking Problems" and is attractively bound in cloth, and indexed as to subjects.

It promises to be the "book of the year" in the burned clay industry.

The price ($1.50) is insignificant, when the value of the work is considered.

The book will be sent, postpaid, on receipt of price.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

How to Analyze Clay (Ashby)	$1.00
Manufacture of Glazed Bricks (English Edition)	$2.50
Manufacture of Roofing Tile (Worcester)	75c
Manufacture of Roofing Tile (English Edition)	$1.00
Masonry (M. A. Howe)	$1.50
Modern Brickmaking (Searle)	$5.00
New Competition (Eddy)	$1.50
Notes on Pottery Clays (Fairie)	$1.50
Observations on Pottery (Beckwith)	60c
One Hundred Bungalows (BBA)	50c
Pottery (Geo. J. Cox)	$1.25
Practical Brick and Tile Book (Dobson-Hammond)	$2.40
Practical Farm Drainage (Elliott)	$1.50
Practical Lessons in Architectural Drawing (Wm. B. Tuthill)	$2.50
Producer Gas and Gas Producers (Wyer)	$4.00
Producer Gas Fired Furnaces (Nagel)	$2.00
Profitable Wage	$2.00
Refractories and Furnaces (Harvard)	$4.00
Scumming and Efflorescence (Lovejoy)	50c
Seger's Collected Works (Condensed)	$3.50
Sewage Disposal Works: Their Design and Construction (Easdale)	$4.00
Sewage Disposal (Fuller)	$6.00
Sewers and Drains (Marston)	$1.00
Smoke Prevention and Fuel Economy (Booth)	$2.50
Vitrified Paving Brick (Wheeler)	$2.00

Address All Inquiries to

Brick and Clay Record's Book Department

445 Plymouth Court, Chicago, U. S. A.

Fans for Drawing Waste Heat From Cooling Kilns.

Dryer Tunnels Furnished with Waste Heat by "Sirocco" Fans.

"Sirocco"
TRADE MARK

Waste Heat Systems

economically convert a **waste** into a **gain.** The Claycraft Brick Co. of Graveport, Ohio, are using the "Sirocco" Waste Heat System. Many other clayworking companies are using the "Sirocco" System and all with the one idea of making valuable use of an element which would otherwise be absolutely wasted. These companies selected the "Sirocco" Fan because of its ability to handle the greater volume of heated air at the lowest cost for operation.

The "Sirocco" Multi-Blade Fan is the real heart of the system. Due to its high mechanical efficiency the cost of operating and maintaining the "Sirocco" System is reduced to the minimum. It is equally adaptable to common—face—fire—and paving brick manufacturing plants, also for the drying of all other clay products. In comparison to the ordinary paddle wheel type of fan, "Sirocco" saves cost of installation—and requires less space for the same duty.

Our Brick Engineering Department will gladly give suggestions regarding a "Sirocco" System for your plant. Write for Catalog No. 102

AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York—141 Broadway.
Rochester—Insurance Bldg.
Philadelphia—605 Hale Bldg.
Pittsburgh—Empire Bldg.
Chicago—Marquette Bldg.
St. Louis—Title Guaranty Bldg.

Atlanta—Empire Bldg.
Minneapolis—Plymouth Bldg.
Kansas City—R. A. Long Bldg.
Seattle—538 Central Bldg.
San Francisco—667 Mission St.
Los Angeles—921 Hollingsworth Bldg.

Indianapolis—1462 Lemcke Annex.
Boston—120 Milk St.
Columbus, O.—810 Harrison Bldg.
Dallas—Southwestern Life Insurance Bldg.
Grand Rapids—209 Houseman Bldg.

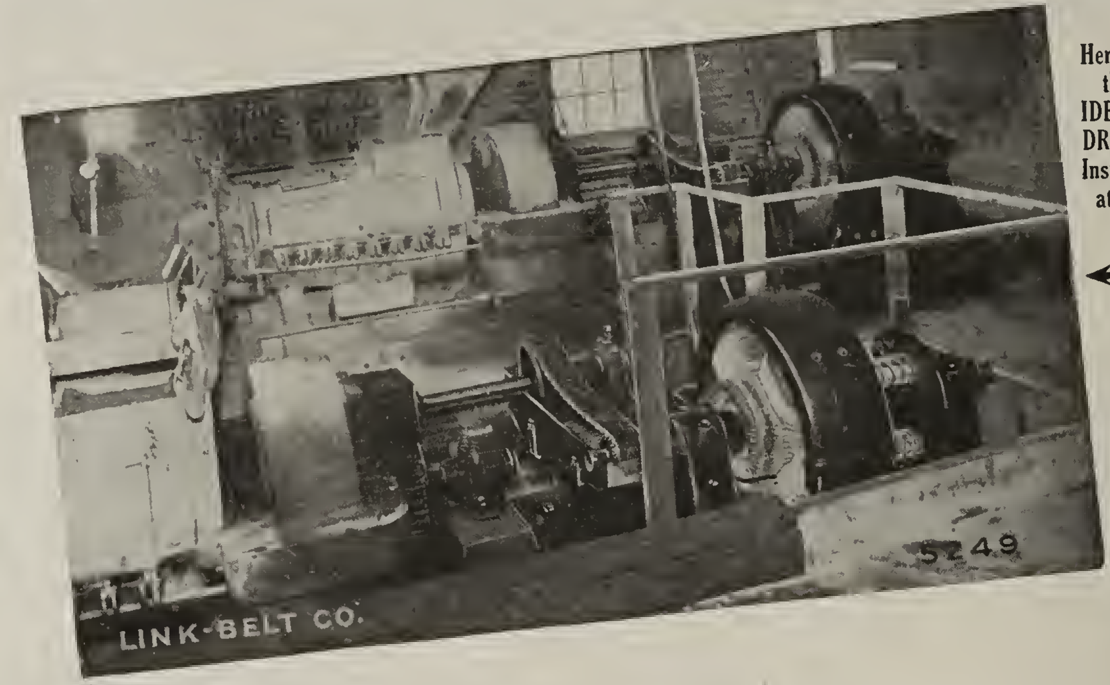
SAY I SAW IT IN BRICK AND CLAY RECORD

"Never a moment of trouble since we installed them"

That's what Mr. J. B. Wilcox of the Alliance Clay Products Co., Alliance, Ohio, says about their

Link-Belt Silent Chain Drive

This is what he recently wrote →



Here's the IDEAL-DRIVE Installation

"We have been using the Link-Belt Drive for eight or ten months and it is a very satisfactory equipment. We have casings for the chains which cover them up entirely, keeping them free from the dust, and they run in oil, which furnishes perfect lubrication. They have not given one moment of trouble since we started using them."

The Link-Belt Silent Chain has proved its claim to the title: "The Ideal Drive for Clay Plants" because it can be run at relatively high speeds—runs in either direction—is not affected by heat, cold or moisture—will transmit any amount of power—gives a positive velocity ratio—can be used on short or long centers—reduces journal friction to a minimum—cannot slip.

Why hesitate longer when scores of brick and clay plants have proven the efficiency of Link-Belt Silent Chains? For your own information and satisfaction send for our book: "The Ideal Drive for Clayworking Machinery." It's FREE and filled with a lot of valuable information.

LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

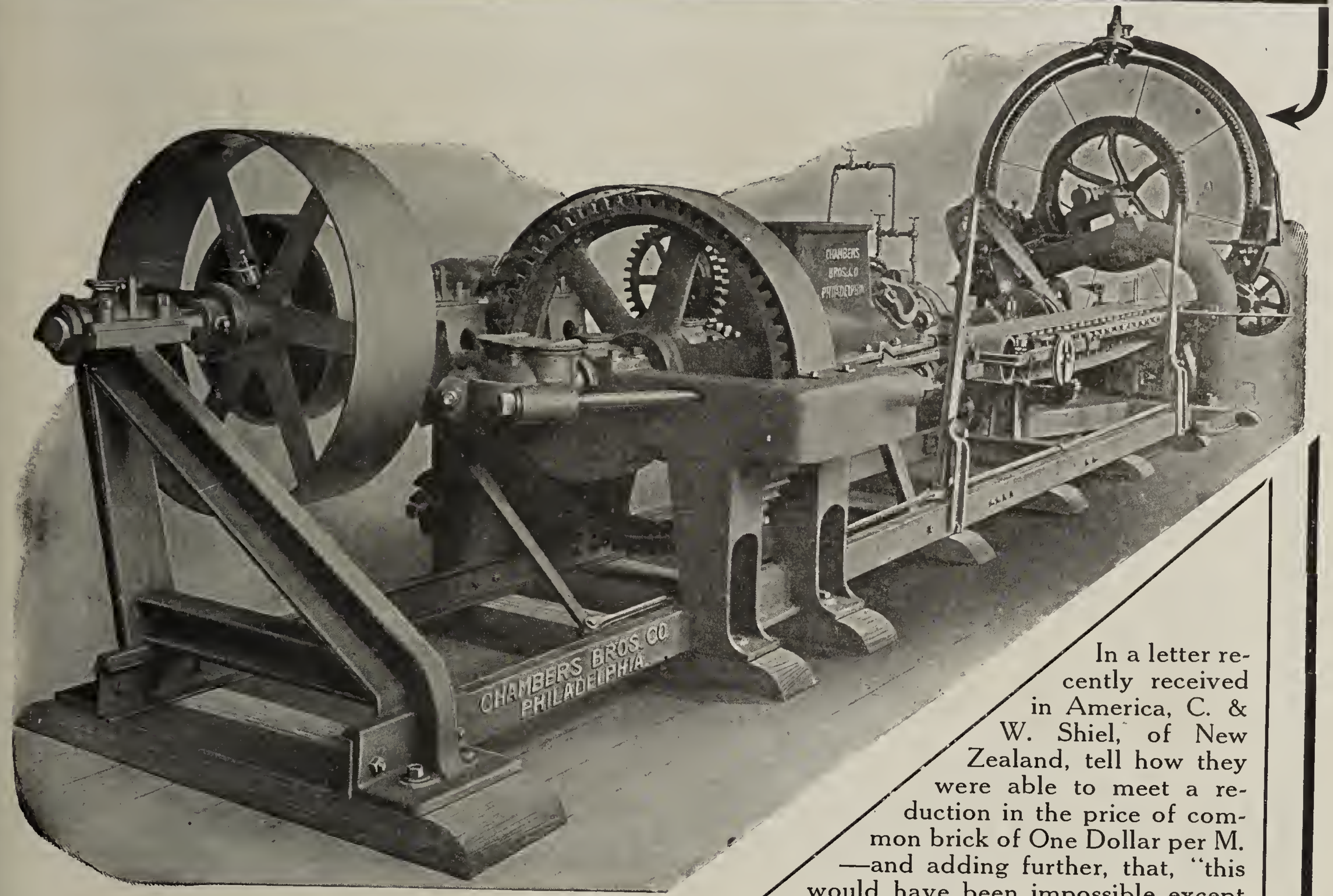
New York - - - - 299 Broadway
Boston - - - - 49 Federal Street
Pittsburgh - - - 1501 Park Bldg.
St. Louis - Central Nat'l Bank Bldg.
Buffalo - - - 698 Ellicott Square
Wilkes-Barre - 2nd Nat'l Bank Bldg.
Portland, Ore. - 14th and Lovejoy Sts.

Birmingham, General Machinery Co.
Cleveland - 1304 Rockefeller Building
Detroit - - - 732 Dime Bank Bldg.
Seattle - - - 580 1st Ave., South
Denver - Lindrooth, Shubart & Co.
San Francisco, Meese & Gottfried Co.

New Orleans - Whitney Supply Co.
Los Angeles, 204 N. Los Angeles St.
Minneapolis - Link-Belt Supply Co.
Montreal, Can., John Millen & Son, Ltd.
Toronto, Can., Canadian Link-Belt Co., Ltd.
Knoxville, D. T. Blakey, Empire Bldg.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

You Can Get Maximum Capacity
With the Chambers No. 10 Auger Machine



In a letter recently received in America, C. & W. Shiel, of New Zealand, tell how they were able to meet a reduction in the price of common brick of One Dollar per M.—and adding further, that, "this would have been impossible except for the efficient equipment we had installed, including Chambers Brothers Brick Machinery."

READ THIS!

C. & W. Shiel of New Zealand bought their first Chambers machine, our No. 10 Auger Machine with End Cutter, several years ago—then last year one of the firm journeyed to Philadelphia and placed an order for additional Chambers equipment—just recently another order has been received from them for another No. 10 Auger Machine.

This is, of course, gratifying evidence of the worth of Chambers Machines—but it's not so exceptional with us—we study the needs of those who place their confidence in us—we sell them such equipment as we are sure will give them MAXIMUM CAPACITY—that's why we keep our trade.

ISN'T IT WORTH SOMETHING TO YOU TO HAVE SUCH CONFIDENCE IN THOSE WHO SERVE YOU?

We'll talk matters over with you anywhere—any time.

CHAMBERS BROTHERS CO., Philadelphia, Pa.

One Hundred Years Ago

Brick were moulded by hand, and the clay was dug by hand with pick and shovel.

Time and progress has eliminated brick making by hand and the latest improved machinery is now turning out hundreds of thousands of brick daily, where they were turned out only by the dozens by the hand method.

Did you ever stop to think that the most important feature of brickmaking is digging your clay? Thousands of dollars are wasted yearly in your clay pit.

Hundreds of brickmakers are in the same old rut of our forefathers—"DIGGING CLAY BY HAND".

As the moulding machines eliminated the moulding by hand, modern machinery is eliminating the digging of clay by hand.

NOW is the time to investigate modern methods of digging your clay, and your one best bet is

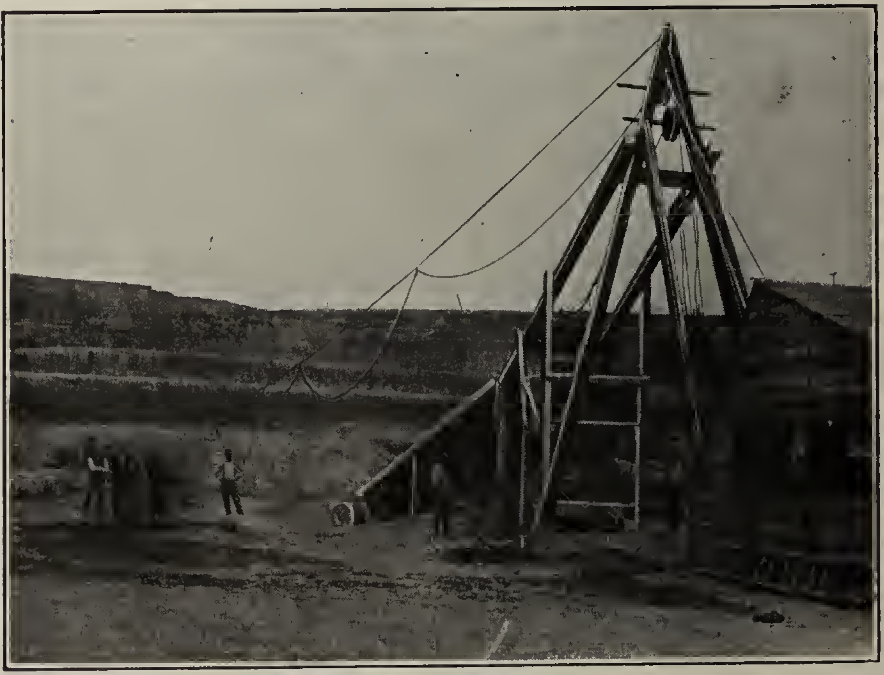
THE SCHOFIELD-BURKETT EXCAVATOR

It saves your labor, saves your stock, saves your time, and first, last and all the time SAVES YOU MONEY.

Every machine sold under an absolute guarantee.

Write today for our No. 10 catalog.

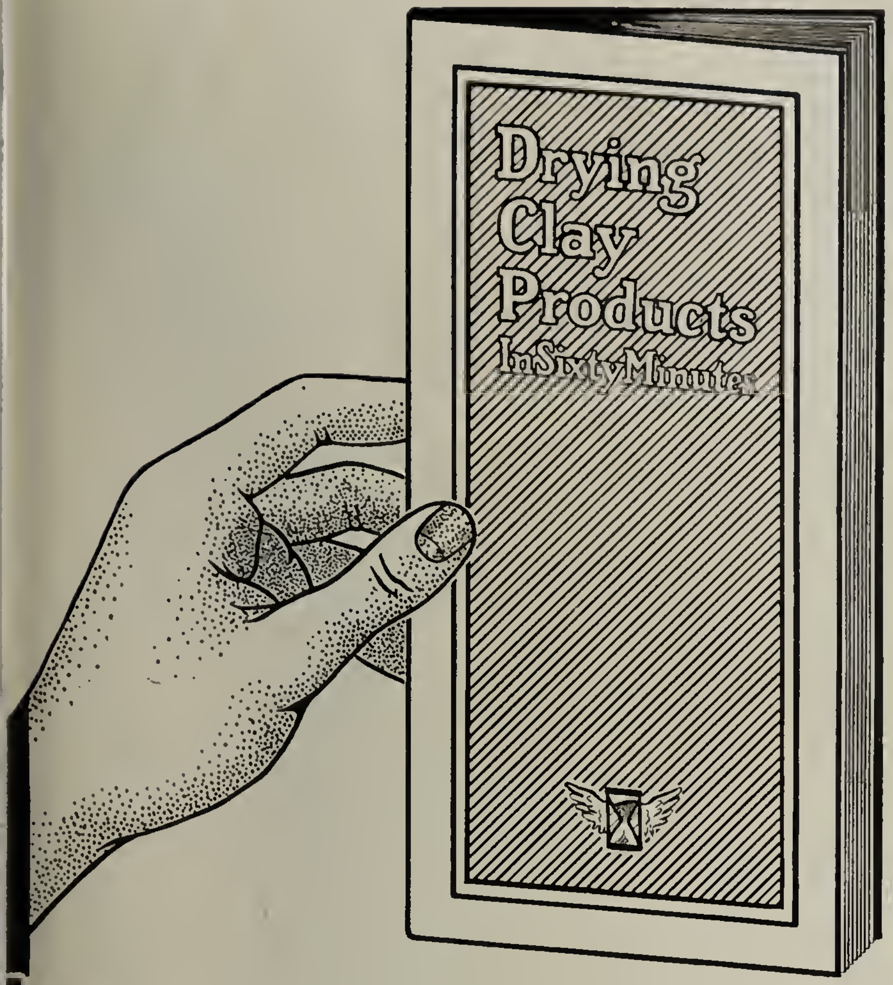
Our Engineers are at your service.



SCHOFIELD-BURKETT CONSTRUCTION CO.

Office and Works, Macon, Georgia

SAY I SAW IT IN BRICK AND CLAY RECORD



Send for This FREE Booklet

You ought to have a copy of this booklet because it tells you how two clay-products manufacturers are actually drying their ware—perfectly, and with less waste than they ever before have succeeded in accomplishing, and doing this in from SIXTY *minutes* (one hour) to ONE HUNDRED EIGHTY *minutes* (three hours) where it formerly took them from FORTY to EIGHTY *hours* to accomplish the *same* amount of work, but not near so perfectly.

It Tells How---
THE CLAY PRODUCTS COMPANY
and Another Company (name furnished on request)
Are Accomplishing These Feats Daily

It tells how they are bone-drying four-inch drain tile in just ONE HOUR where they required FORTY HOURS by the process they formerly used—the same process YOU and OTHER clay-workers are still using today.

It tells how they are drying *conduit* ware—a difficult ware to dry, and accomplishing this in THREE hours, where formerly they took EIGHTY hours by their old system.

It Tells About
THE PROCTOR DRYING SYSTEM
Which Makes These Feats Possible

In fact it is a most remarkable book about a most remarkable system—and you *ought* to have a copy.

This PROCTOR SYSTEM is revolutionizing CLAY-PRODUCT drying just as it did SOAP drying and LEATHER drying—

And it may revolutionize YOUR manufacturing methods, just as it has those of the Clay Products Company of Brazil, Ind., and of the other company referred to above.

BETTER SEND FOR YOUR *FREE* COPY TODAY For the book contains actual *proofs* of each statement made in this advertisement and what seems unreasonable to you *now* will be made convincingly clear to you when you open the first page and read.

Both of these clay-products manufacturers give a detailed report on their successes with the PROCTOR SYSTEM, and there are photographic reproductions of this remarkable drying system actually in operation. "Drying Clay Products in Sixty Minutes" is a most remarkable book and you really OUGHT to send for a FREE copy.

THE COUPON AT THE RIGHT MAKES IT EASY FOR YOU.

Philadelphia Textile Machinery Co.
Hancock and Somerset Streets, Philadelphia, Pa.

USE COUPON

Philadelphia Textile Machinery Co.
Hancock & Somerset Sts.
Philadelphia, Pa.

Send us our FREE Copy of your booklet, "Drying Clay Products in Sixty Minutes." This does not obligate us anyway.

Signed...
City...
Street...
State...

SAY I SAW IT IN BRICK AND CLAY RECORD

"SCANDINAVIA"

THE CONVEYOR BELT

No
Plies

No
Stitches

No
Laps

Not
Affected
By
Water,
Oil
or Dust

(1,500 feet of 22 inch Extra Stout)

"Scandinavia" is the same all the way through,
and the wear is absolutely uniform.

No weak spots in "Scandinavia."

Surface wear does not destroy "Scandinavia's" usefulness.

"Scandinavia" has great tensile strength.

Superintendent of plant illustrated states:

> "Scandinavia" wore longer and better than 6-ply rubber and 8-ply stitched canvas put on at same time."

Write our nearest office for full details.

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San Francisco, Los Angeles, Portland, Ore.

Canada—Federal Engineering Co., Limited—Toronto and Montreal

SAY I SAW IT IN BRICK AND CLAY RECORD

BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

GETTING PROFIT out of a clay plant is far from being difficult. Compared to many other industries, the cost of raw material is nominal, the wage rate low, the selling problem a simple one.

While the product is one which is neither eaten nor drank, nor used up in some human search after pleasure (or cleanliness, or comfort)—while it does not decay, nor wear out—it has an ever-renewed market.

Wherever it is sold with any discernible amount of intelligence, it brings a higher price than the materials with which it competes.

So, with favorable manufacturing conditions and a product that commands a price on account of its excellence for the purpose for which it is sold, conditions for profit-making would seem ideal.

Yet the number of clayworking plants that are making a fair return on the amount of capital invested is much smaller than the number that are sailing so close to the wind as to make a little in good years, break even in fair years—and lose money when business is bad.

There is a reason—maybe more than one. A. F. Greaves-Walker, in an article begun in this issue, says:

"Capacity is the turning point on which the success or failure of a clayworking plant depends."

He means that a plant must be run to the limit of its capacity to make money. Where the output is a varying factor, the bank balance is similarly unreliable.

In another paragraph he says—and you will do well to read his article twice over:

"In no other industry are excuses for failure so readily accepted."

Have you any idea why this is so? The answer is—that failures are made, as a rule, by the plant owners—and that the men who work under them do the best they can with the equipment furnished them.

A man is very apt to accept an excuse for failure, if the excuse is his own—as well as the failure.

"Things have changed in the brick business," says one of these excuse-makers. Yes, "things" have. The trouble is that some of the men in the business haven't.

Modern machinery has replaced much of the hand-labor. Modern drying methods have made the open-air rack a rarity. Modern kilns are replacing the old-fashioned Scotch and scove and clamp, and modern men are replacing the old-timers who used to mend a harness with a string, and carried that method into their machine room.

The modern men have no patience with yearly shut-downs for repairs; they cannot understand the plant's being idle one precious working day in three hundred, "waiting for clay" or "waiting for a kiln" or "waiting for a new machine part."

They know that the interest on the money they have borrowed is going on, whether the yard is working or not. They know that there are mouths to feed and feet to shoe every day—with no days off for boiler trouble, or drier trouble, or bad weather.

They, being money-makers—instead of merely being clayworkers—do not run their plants on excuses, either of their own or some one's else making. Excuses pay no dividends, retire no mortgages, raise no salaries.

They realize that running the plant to capacity—getting every ounce of energy there is in very man, every machine, every pound of coal and ounce of oil, means the expenditure of some thought on their own part and the investment of some real money in the best equipment that money can buy.

They realize that machinery is cheap, when compared to labor. They realize that poorly designed and poorly built machinery runs up a labor bill out of all proportion to its low initial cost and then gives its owner "the laugh" by breaking down and shutting off the earning power of every other machine—and every man in the plant.

These money-makers buy good. That statement is not as ungrammatical as it looks. You buy "right" when you buy a piece of land, or a boat or a horse, for half its real value. You buy "well" when you buy carefully, considering quality and wear and fitness more than initial cost. You "buy good" when you buy the best there is for the purpose, paying top notch price—if necessary—but getting efficiency built into the machine.

Coopering the Pork Barrel

We are indebted to the Hebron (N. D.) Fire and Pressed Brick Company for a copy of the "Stockgrowers' Journal" published in Miles City, Mont. In this particular issue, the editor takes umbrage at the fact that the new post-office that is being erected in Miles City is faced with brick, and not with stone.

During the months that preceded the blowing up of the Maine and the subsequent proceedings against Spain, the papers of this country shrieked against the dilatory tactics of the man who stood then, even as President Wilson stands today—contemplating a comic-opera army and a wholly inadequate and unbalanced navy.

Later, we lived to read of the appalling number of deaths in the camps to which raw recruits were sent—insanitary places, in which typhoid and kindred diseases of filth took their toll. The country had neither trained men nor a safe place in which to train them.

Many years—and every year—before that, and many years and every year after, army appropriation bills have been pared down and cut to pieces, while public buildings have had right of way.

The editor of the "Stockgrowers' Journal" says: "We 'got in' on this distribution of public-building plums before the distance flag fell, for with the demands that 'preparedness' is going to make on the public treasury for some years hence, appropriations for public buildings will have to show a much more impressive need than Milestown or towns of its size or larger could show, before they can get through."

The Senator from Montana must be proud of his ability to get Miles City "under the wire" just in time to make "preparedness" that much more remote—particularly in view of the fact that the editor of the "Stockgrowers' Journal" hints that there was no "impressive need" for a government building in Miles City at the present time. He must also be proud of the fact that his constituents are throwing the brick with which it is built perilously close to his devoted head, and sincerely wishing that they were blocks of stone.

The Year's Lesson

Within a week, the President's Thanksgiving proclamation will be spread upon the pages of the daily press. Without attempting to forecast the eloquence of that document, it is well to call attention to the fact that this country and its citizens, great and small, have much to be thankful for.

First and foremost, with one nation after another being caught in the awful maelstrom of war, our ship of state has been so surely and safely guided that ours is about the only country in the world that has not suffered.

The year just closing has been one of severe discipline, of finding ourselves, of seeing our faults and knowing our frailties. It has given us a clearer vision as to our strength.

No man knows our destiny, but we are learning to face the future unafraid, with a higher regard for the freedom of this great land, a surer belief in its institutions, a better opinion of the men in office.

Now that we know our safety lies in the hands of Congress and the White House, we are more willing to believe that the men we elected are statesmen—rather than politicians.

Industry has ceased to fear the effect of the war upon its exports or—what was more important—its imports. We are turning to the making of the things we bought.

Necessity may have mothered invention, but the fatherhood lays in the resourcefulness of a wonderful country, blessed with the willingness to accomplish big things, and the power to set that willingness at work.

The Hotel Chamberlin, Newport News, Virginia (Old Point Comfort)

Here Will Be Held the Face Brick Conventions December 8, 9 and 10

The American Face Brick Association

Twenty-Seven of the Largest Producing Plants in the Country Hold Membership

Howard W. Holmes, *President;*
R. D. T. Hollowell, *Secretary.*

Face Brick Dealers' Assn. of America

Fifty-Four Prominent Distributing Houses Comprise the Membership and Directorate

F. Lawson Moores, *President;*
R. L. Queisser, *Secretary.*

To Discuss Sales Ethics at Face Brick Convention

THE FACE BRICK CONVENTION at Old Point Comfort promises to be a record breaker, not only from point of attendance, but because of the sensational nature of the proceedings.

It is definitely decided that the Face Brick Dealers' Association of America will hold its annual convention and election of officers at Old Point Comfort, December 8, 9 and 10, instead of postponing their meeting, as had been rumored, until February next, when it was to have been held during the week of the Complete Building Show in Cleveland, Ohio.

The fact that there is to be a joint convention of manufacturers and dealers in face-brick gives promise of some fireworks. During the past year—many times and often—differences of opinion have arisen as to the application of the "ethics" of the American Face Brick Association to the dealers, who were members of another organization, and in no way bound (except by resolution) to any rules or regulations of the manufacturers' organization.

For that reason, it was feared that the unwillingness of the dealers' association to abide by its constitution and by-laws—which call for a meeting "at the same time and place as the meeting of the American Face Brick Association"—would postpone some very constructive work. That fear being removed, the program is being prepared with a view to some radical improvements.

Three days "by the sea" ought to be enough to settle all of the differences, most of which are of opinion, altho of so deep rooted a variety as to look very much as tho they would require some blasting to upheave them.

THE PALM GARDEN

THE SEA WALL

Three days of hard work—of continuous meetings and conferences by day and of restful slumber at night—ought to put enough ginger into the making and selling of face-brick as to make the big profits of next year a foregone conclusion.

During the past year, both associations have had committees at work, gathering data and preparing plans for aggressive campaigns to extend the use and to provide for a more intelligent use of face building brick. The chairmen of these committees have, almost to a man, promised that their reports will be of a nature that will "curl the hair" of the members of the two organizations.

The retiring president of the American Face Brick Association has given a great deal of thought to his annual address. It will be a careful presentation of the immediate future of the business as he sees it, and will call attention to the fact that it is being jeopardized by what can be justly called doubtful practices.

An effort will be made to adopt a basic plan for cost-finding on face-brick plants, so that the fundamental costs may be so tabulated that intelligent comparisons may be made, and an organized movement inaugurated that will eliminate much of the waste that has been so large a factor in reducing the legitimate profits of the industry.

The advisability of publishing a hand-book of building costs will be discussed. It is felt by many of the directors that the amount of knowledge that has been obtained in relation to brick building is worthy of a proper setting and that it should be put in some form that will give the membership the benefit of the real facts, endorsed and approved by unprejudiced authorities—facts that will carry conviction wherever presented.

There is a movement on foot which has for its object the adoption of a uniform lien law, to apply to all states east of the Rocky Mountains. The provisions of this law will be presented and an attempt made to provide a way of bringing the approved draft to the attention of the legislatures of more than thirty states.

The much mooted question of the relation of the selling price of face-brick to the manufacturing cost will also be aken up, and some time and thot given to the relative amount of profit that is due the manufacturer. Heretofore, the price question has been considered as beginning with the manufacturer and ending with the dealer—to whom the manufacturer sells. So many manufacturers are also dealers, however, that the proposition has extended itself until it is largely one of the relation of the producing cost to the price paid by the ultimate consumer. This will be taken up by the American Face Brick Association in joint conference with the Face Brick Dealers' Association.

Another question that will be considered in joint conference will be the division of the responsibility of the manufacturer and the dealer, in case of the rejection of material after it has been delivered to the building site.

The influence of the mat-faced brick upon the face-brick manufacturing industry will be given a great deal of time and thought. Scores of plants which, up to a year or so ago, were making common-brick only, are now sending a scratch-face common into the market, and selling it as a face-brick. The result is a general lowering of the price and consequent profit on all grades of face-brick, as well as educating the public to the use of a distinctly inferior material. The assertion is made that "life in brickwork"—the greatest claim face-brick has to artistic excellence, can be given permanence by the use of smooth-faced brick, laid in wide mortar joints. If this contention is proved, it may result in the association's going into a real campaign of education that will include the

MOONLIGHT ON HAMPTON ROADS

architectural profession as well as the builders of the country.

These are but a few of the "set-pieces" that will cause "Oh's" and "Ah's" at the fireworks exhibit that will take place at Old Point Comfort Dec. 8, 9 and 10. There will also be a "rocket" or two—so "look out for the stick."

Association Notes

Coming as it does, a full month after and a full month before the national conventions of the face-brick and common-brick manufacturers respectively, the Canadian convention has more than a fair chance of a good attendance from this side of the border-line. Already there is a movement among the paving-brick men to arrange for a delegation and it is thot that something will be said at Old Point Comfort in favor of a "face-brick special" to take a representative group of manufacturers to Toronto.

At every recent convention of the National Brick Manufacturers' Association, that Canadian "bunch" has made itself felt. In Chicago it came with the "Kilties' band"—at New Orleans it proved that distance had no effect upon its loyalty to its brothers in clay—at Detroit, it added the strength of its men to the discussions, and the beauty of its women to the attractiveness of the group in the gallery.

The Canadians are enthusiastic hosts. A warm welcome awaits every brickmaker from the "States" who goes to Toronto the third week in January, 1916—or, to be exact, the 18th, 19th and 20th.

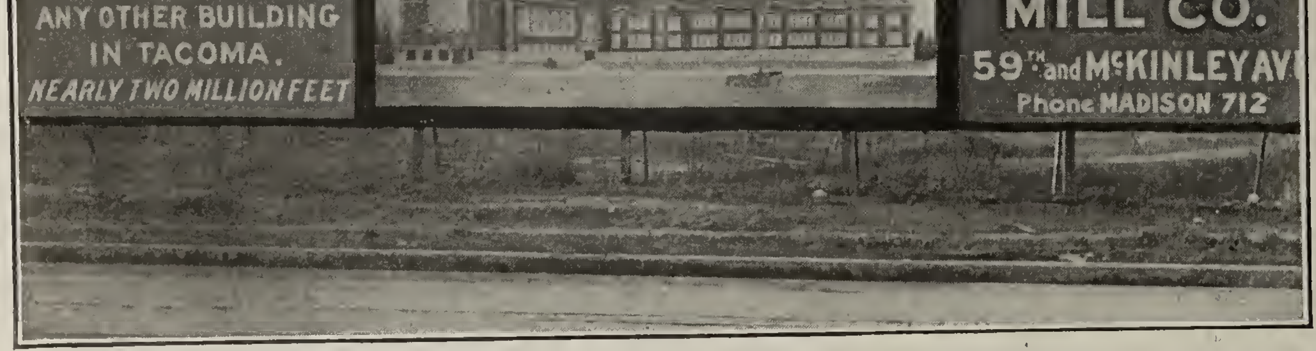
Nor will the "welcome" be all; the papers are always worth while. Here are the advance reports: "Clay Plant Equipment" by Ray T. Stull, ex-director of ceramics at the University of Illinois; "The Future of the Face Brick Industry in Canada" by F. R. McCannell, managing director, Milton Pressed Brick Co., Milton, Ont.; "The Clay Deposits of Southern Saskatchewan" by N. B. Davis, Mines Branch, Ottawa, P. Q.; "The application of Salt and Quicklime in Drying" by Joseph Keele, Mines Branch, Ottawa, P. Q.; "Operating Clay and Shale Pits in Canada" by William Burgess, superintendent Don Valley Brick Works, Todmorden, Ont.; "Safety in Clay Products Plants" by Charles A. Millar, Inspector Clay Products Plants under Ontario Workmen's Compensation Act; "Hollow Ware Dies" by A. F. Greaves-Walker, assistant general manager, Sun Brick Company, Ltd., Toronto, Ont.

"Building to Burn"

"There are only a few kinds of buildings" says a writer on civic improvement, "to which we compel people to go—and stay"—these are jails, asylums and schools. As a rule, the latter are built with a view to safety—safety from disease and safety from fire.

Last year, however, Tacoma, Wash., built a new high school, designed to "accommodate" fifteen hundred students. It cost $400,000. In addition to being so designed that it had a practically unbroken area of 30,000 sq. ft., and an auditorium directly over the lunchrooms and kitchen and several other inducements to the quick and easy spread of fire, it was practically a brick shell, filled with wood.

An enterprising lumber concern saw the opportunity of calling attention to the excellent contract it had received. The sign painter very appropriately surrounded the picture of the school with a border of black.



Courtesy "Safety Engineering"

How a Lumber Concern Capitalized Tacoma's Disgrace

Coming Conventions

Dec. 7 and 8..........Sand Lime Brick Association (Manufacturers)....................Republican House, Milwaukee, Wis.

Dec. 8, 9, 10........American Face Brick Association (Manufacturers)........Hotel Chamberlin, Fortress Monroe, Va.

Face Brick Dealers' Association of America, Hotel Chamberlain, Fortress Monroe, Va.

Jan. 18, 19, 20........Canadian National Clay Products Association........King Edward Hotel, Toronto, Ont., Canada.

Feb. 3 and 4........Iowa State Clay Products Mfrs. Association,........Iowa State College, Ames, Iowa.

Feb. 8, 9, 10........Illinois Clay Products Association........ Hotel Jefferson, Peoria, Ill.

Feb. 17, 18, 19..........National Builders' Supply Association....................Hotel Statler, Cleveland, Ohio.

Feb. 21 to 26........National Brick Manufacturers' Association........Hotel Statler, Cleveland, Ohio.

Feb. 16 to 26........THE COMPLETE BUILDING SHOW ....The Coliseum, Cleveland, Ohio.

Refractories Company Leases Cement Plant

The American Refractories Company of Chicago has leased the plant of the Buckeye Portland Cement Company, at Harper, Ohio, which is now being equipped and machinery installed for the calcination and production of dead burned magnesite, on a large scale. Immense tonnages of California magnesite have been purchased and it is expected the plant will be in operation early in December.

It will be continuously run until conditions in Europe permit a resumption of shipments from the large magnesite works of the Austro-American Magnesite Company, located at Radenthein, Austria, and which has an annual capacity of 150,000 tons of calcined magnesite. The Austrian plant was described in the September 1, 1914, issue of "Brick and Clay Record."

New Pottery for Toronto, Ohio

The Wayne Pottery Company, recently organized with a capital of $200,000, has taken over the old plant of the American China Company at Toronto, Ohio, near Steubenville, and will put $20,000 into alterations and additions preparatory to operating. Active organizers of the new company are Charles U. Harris and A. F. Colerdine of Minerva, Ohio, and Thomas Davis of Sebring. The firm was originally underwritten by the Mauger-French Co., of Massillon, Ohio, and offered to the Board of Trade of Wooster, Ohio, but was forfeited by that city after an unsuccessful attempt had been made to sell $50,000 stock. Three hundred men will find employment. Bondholders of the American China Company, were represented in the proceedings by A. S. Buckingham. Operations will be started the latter part of December or early in January.

Brickmaking in Oregon's Pine Belt

WITH the largest soft-mud machine in Oregon, the Bend Brick and Lumber Company, of Bend, Ore., owned by A. H. Horn, is planning to resume operations next spring, which promises to usher in a year of unprecedented building in the Far West.

The past year has been an exceptionally busy one for this company, cold weather only now compelling the plant to close for the season. Despite the fact that it has been maintaining a daily capacity of 25,000 brick since July 1, the plant has not been able to supply the heavy local demand for industrial, business and residential work. Local lumber concerns have put in their bid for a good share of the Bend Company's output, 827,000 brick having been furnished for the Shevlin-Hixon Company's saw-mill and 800,000 to the Brooks-Scanlon Lumber Company. Mr. Horn contemplates extensive additions to his plant for the coming year in anticipation of a busy season. The machinery now used is inadequate and so it has been decided to install a new soft-mud brick machine, having a daily capacity of 50,000 brick, which, it is said, will be the largest in Oregon.

Prominent Brick Man Joins the Allies

Louisville (Ky.) brick and building material dealers are reading with interest the career of Owen Tyler, formerly one of the leading brick dealers of the city, who is now in France representing that government in the purchase of horses. Besides being a good brick salesman, Mr. Tyler is a connoisseur in horse flesh and when the war broke out he entered the service. He left Louisville for South America, where he expected to enter business, but the war temporarily upset his plans, and when the opportunity came up he turned his hand to horse buying. His superior abilities in that direction attracted the attention of the French officials and he was summoned to France to act in a more important capacity.

Ceramic Club Elects Officers

The ceramic students at the University of Illinois have the association spirit and their "Ceramic Club" is doing good work at Urbana. At a meeting held October 21, officers were elected to serve during the coming year. They were: Walter C. Millson, president; Joseph W. Wright, vice-president; R. A. J. Steinmeyer, secretary-treasurer. Meetings are held every fortnight and an address is given by some member of the faculty. Gas producers and producer gas, shop efficiency, the direction of labor in the clayworking industries and like subjects are treated. At the meeting held October 21, L. J. Sheridan, of "Brick and Clay Record's" circulation department, told of his experiences in connection with subscription work thru Iowa and Illinois.

The War in Europe Has Sent the Price of Good Draft Horses Skyward. The Same Thing Is True of Feed. On the Other Hand, Gasoline Does Not Cost as Much as It Did

Ruling Affects Convict Made Brick

The ruling recently announced by Attorney-General Turner, of Ohio, to the effect that the State cannot sell in the open market brick made by the convicts at the State plant was extremely gratifying to the numerous manufacturers of paving brick in Ohio, as competition of this sort would be distinctly felt. Furthermore, the opinion is construed as meaning that convict-made bricks cannot be used in the improvement of the public highways, as such use of them would be equivalent to putting them in the market against the product of the ordinary manufacturer. The net result, however, is declared by T. F. Davey, a member of the State board in charge of the convicts, to be the crippling of the State brick plant, unless some means are found of disposing of the product. Seventy-five men from the penitentiary have been employed in this plant, which is located at Junction City, Ohio, for the past two years, and have turned out several million paving and building brick. It seems, according to Mr. Davey, that about 1,500,000 pavers from this plant have already been purchased for use on the highways, and are now ready for delivery.

Trenton Potteries Declares a Dividend

The Trenton (N. J.) Potteries Company has declared its regular quarterly dividend of one per cent on the non-cumulative preferred stock.

Central Station Service Cuts Power Cost in Two

Fire Brick Plant Shows Great Saving in Lighting and Power Cost by Substituting Electric for Steam Power

A Part of the Denver (Colo.) Fire Clay Company's Plant

A DECREASE of 28% in the monthly coal bill and a saving of more than $50 a month in lighting and heating costs, is the result achieved by the Denver (Col.) Fire Clay Company, through the substitution of central station electric service for power formerly generated in its private plant.

This company is engaged in the manufacture of various types of refractories, such as fire-brick, crucibles, tiling, oil furnaces for the treating of gold, silver and other metals, pulverizers, crushers, gas and gasoline furnaces, fans, blowers and other apparatus of a kindred nature used in laboratories, chemical establishments and industrial plants. It employs between fifty-five and sixty men in the plant, which has been in operation for forty-five years.

At first the machinery was run by engine drive for shaft transmission. In 1906 it was remodeled, and a 125 HP. tubular boiler, a 30 HP. engine, direct connected to a 250 volt D.C. generator, and a 75 HP. engine direct connected to a 250 volt D.C. generator.

The various machines in the plant were driven by 172 HP. of motors itemized as follows: 15 HP. motor in the wood shop; 7½ HP. in the machine shop; 7½ HP. on three clay pressers for making crucibles; 5 HP. on screen and bucket elevator; 10 HP. on pug-mill and screen; 15 HP. on pug-mill; 70 HP. on pug-mill for fire-brick, brick press, grinders, crushers and bucket elevator; 5 HP. for artesian well pump, 30 HP. on a grinder; 5 HP. on bucket elevator; 2 HP. on a barrel shaker; 5 HP. on a freight elevator and 2 HP. on an emery wheel and drill press.

In December, 1912, the Denver Gas and Electric Company succeeded in connecting a 75 HP. 2,200 volt, 3-phase motor generator, displacing the two engines, with the result that the economy mentioned in the first paragraph was effected.

This plant constitutes a notable example of the economy which may be effected through the substitution of central station electric power for that generated in private plants. Purchased power dispenses with the inconvenience and numerous expenses incidental to an isolated generating station.

The power supplied in outlying districts by the electric companies is generally of the alternating-current variety, in order to obviate the prohibitive expense for transmission which would be incurred by maintaining a direct-current service. The usual practice in the use of alternating-current power in the suburbs is to transmit it to these districts at a high voltage, or pressure, over transmission lines known as primaries. The high pressure enables the use of much smaller wires or cables for the transmission of a given amount of power than could otherwise be employed.

It was alternating-current service that was purchased by the Denver Fire Clay Company. To use this power for driving the direct-current motors which had formerly been used in connection with their private plant, they installed a motor-generator, the motor end of which is operated directly by the 2,200 volt alternating service. This motor drives a generator which in turn supplies the direct current required by the motors.

Where alternating current motors are to be used, the power is passed through transformers which step it down to the voltage, usually 440, which is used on the motors.

With clayworking plants it is common to step the voltage down in a special transformer substation located directly at the plant proper. One set of transformers is provided for the motor circuits and another for the lights. Plants where such an installation is exemplified at its best have, in addition to the transformers, a switchboard for the systematic distribution of the current to the various circuits in the plant. These boards contain all, or a part, of the following apparatus: Carbon circuit breakers

Pug Mill and Brick Press for Fire Brick. Green Brick Piled Above Steam Heated Coils are Shown in Foreground protecting each feeder; switches for opening and closing the various circuits; graphic meters for the accurate registration of all fluctuations in the voltage and the varying amounts of power consumed· recording meters for making it possible at any time to tell at a glance the total amounts of power that have been used by the plant as a whole and each of its various departments.

The many advantages of central station station power, proved by numerous instances like that of the Denver Fire Clay Company, make it highly commendable for plants of this character. The extension of the street railway system to so many of our formerly isolated communities puts this power much more within the reach of many clay plants than in years gone by, and the fact that the power is used during the day, when the load on the central station is lightest, makes for a good rate.

Where the Complete Building Show is Erecting the House That Will be Given Away

Building a Brick House to Give Away

No effort is being spared by those who have in charge the publicity work connected with the Complete Building Show, which is to be held in Cleveland, Ohio, February 16 to 26, 1916. One of the most noteworthy of their achievements, is the attention that is being drawn to the model house that is to be given away at the show. Contrary to the policy of the two clay shows held in Chicago, this house is being permanently erected, and on a most attractive site on Lake Shore Boulevard, one of Cleveland's most beautiful drives.

Thousands of automobiles and street cars daily pass the site. Already hundreds of persons, their curiosity aroused by the sign announcing that the house is to be given away, have inquired at the offices of the Complete Building Show, seeking information regarding the house and the manner of its disposition. As regards the competition, the show officials are maintaining a discreet silence. They are, however, doing a lot of thinking.

"We have a plan in mind," said Ralph P. Stoddard, manager of the Complete Building Show, "but are not ready to announce it at present. I can give assurance, however, that the plan the directors are perfecting will be entirely novel, and will insure the house going to someone who will appreciate the fact of having won it in competition, rather than as the result of a lucky guess, or some other lottery-like scheme. Also it will be a plan which will tie the contest to the exhibits in the show, thus securing a benefit to the participants in the great educational exhibit that we are going to hold at the Coliseum next February."

Clay products will be well represented in this house, the greater part of its exterior being of brick and the roof of clay tile. The walls will be of hollow clay tile and altogether it will be an excellent demonstration of the advantages of burned clay in home building. Sketch plans show that the house will be very attractive.

Flower Pot Notes

On account of the high freight rates, which in some instances closely approach the full amount of the invoice, carlot handlers or users of flower-pots are contemplating a central supply depot, with the object of eliminating at least part of the freight, and delivering flower-pots at factory list prices, plus a slight charge for handling and rehandling.

This scheme does not promise to remove the chasm between the flower-pot manufacturers and the greenhouse-men. The best standard pots are made, it is said, in the North and East, every state east of the Mississippi River contributing a larger or lesser quota.

Western clays make fine red pots, but the western potteries are usually badly equipped to bring out the quality, and do not seem to have the financial resources of their eastern rivals.

New Building Ordinance in St. Louis, Mo.

The "Build with Brick" slogan has taken on the guise of a club in the form of a council bill recently introduced in St. Louis. This bill prohibits all manner of structures that are not built of brick, concrete, stone and other fireproof material, and covers the city within the fire limits, save some minor suburban sections.

Since the proposition has been made public, opponents have appeared in force, and, as usual, the lumber interests charge the brick manufacturers with undue influence.

Contractors by the score and unnumbered builders hold that, owing to the high lumber prices, a dwelling, barn or garage built of brick, costs but little more than one built of wood and has the advantages of beauty and economy, neither of which wood possesses.

An observant traveler touring the countryside round about St. Louis took pains to investigate the fire damages which had occurred during recent years. Ninety per cent of the buildings damaged or destroyed by fire were of frame construction and it was easy to see that the older frame houses and barns, if given a chance, would burn like tinder. In Webster Road at Kirkwood still stands intact a brick-built water-tower casting its shadow over the ruins of an adjacent wooden structure, months ago razed by fire.

Twelve Kilns on a Single Stack

A 200 ft. stack at the plant of the Decatur (Ill.) Brick Manufacturing Company pulls from the entire battery of twelve kilns, and will have additional work to do when the additional kilns, of which there are to be four, are built. The stack measures 16 ft. 2 in. at the bottom and 9 ft. at the top, being supported by a 30 ft. by 30 ft. concrete foundation, the 4½ ft. of concrete being reinforced with one hundred ¾ in. twisted steel bars.

Running a Plant to Capacity

Being the Third of a Series of Articles on the Manufacture of Building Materials in Burned Clay

By A. F. Greaves-Walker

(Asst. Genl. Mgr. Sun Brick Co., Ltd., Toronto, Ont., Member American Ceramic Society, Member English Ceramic Society, Member Royal Society of Arts, Fellow Utah Academy of Sciences)

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CAPACITY IS THE TURNING POINT on which the success or failure of a clayworking plant depends. In this article "capacity" must not be confused with "output," but is to be defined as the maximum amount of material it is possible to put through the weakest unit of a plant per day or per year. Very generally the weak units of a plant (or the units which have the smallest capacity) are either the driers or the kilns, and in such cases these units regulate the capacity.

Most clayworkers realize that in order to be successful, or in other words, to pay dividends, it is absolutely necessary that the plant be *continuously* run to "capacity." However, from the annual record of failures in the clayworking industry it is quite plain that whether the importance of this fact is realized fully or not, the plant owners who are able to continuously get "capacity" are in the minority.

The writer could readily name a dozen men who stand head and shoulders above their fellows in the industry, and whose very names spell success; it takes but a moment to analyze the reason. In few words—it is because they can get "capacity"—every ounce of capacity out of their plants, day after day, month after month and year after year.

It goes almost without saying that men who can accomplish this result have very little trouble as regards quality, and very little trouble in the disposal of their products, the same rule being reversed and working the other way equally as well; men who handle a plant in such a way that breakdowns and shut-downs are the regular thing, cannot keep up the quality and cannot dispose of their products with the same ease as the men whose plants are run to "capacity" from one year's end to another.

In no other industry are excuses for failure so readily accepted; yet who can point to a leader in the field of clayworking who has not, at some time or other, taken hold of a plant which has been a financial failure in other hands and, by waving the magic wand of his efficiency, has brought it back to prosperity. Often this is done without the change or addition of a single piece of equipment. When investigation sought the reason for the financial reform, it found—it always finds—capacity.

What are the reasons for some plants running with a steady output, while others, equally well situated, are unable to do so? In the first place it is absolutely necessary that the machinery equipment be of the highest grade and suited to the materials and process; that the various units which make up the plant—mining, manufacturing, drying and burning—be well balanced; that there be harmony among the employees and that the man in charge be thoroly capable of keeping his equipment in first-class condition.

WELL BUILT MACHINERY A PRIME NECESSITY

The quality and type of the machinery is of prime importance. With weak, poorly designed and poorly built machinery, or machinery that is unsuitable for the work required, nothing but trouble can be expected. A plant is often doomed by the machinery salesman before it is built; and here our industry in unique, for in no other can equipment be found that is so totally unfit for the service required of it. It is useless to blame the machinery manufacturer altogether, for he is merely supplying the market with what it demands and at the price it is willing to pay.

Where it is practically impossible to get efficiency out of a plant because its equipment is not equal to the work required of it, there can be but one wise thing to do, and that is to eliminate the weak parts and replace them with units of sufficient strength. It is often a single machine that causes the trouble, a dry-pan, elevator, pug-mill, brick-machine or cutter, involving the expenditure of a thousand dollars or less, *an amount easily lost every month or two in a plant constantly bothered with break-downs.* As an illustration of this—the writer recently had occasion to go thru a very successful Ohio plant with a party of business men; pushed into an out-of-the-way corner was a complete and very fair looking hollow-ware machine. The president of the company was asked why the machine had been thrown out. His laconic reply was that "It was not a *dividend producer.*" It appeared that a smaller, but *better designed* machine which had taken its place, was producing fifty per cent more tonnage—not because the ware was pushed out faster but because the machine ran without constantly recurring mechanical troubles.

A plant to run efficiently should be well balanced. It is far easier to keep up a steady flow of ware if the drier easily takes care of the machine, and the kilns easily take care of the driers. Moreover, a halting, unsteady flow of ware will demoralize the best gang of men that ever worked in a brick plant.

HARMONY AMONG EMPLOYEES AN ESSENTIAL FEATURE

Harmony among the employees is a very important factor. This is especially true with regard to the foremen and mechanics. Foremen who work together and who constantly assist one another can do wonders toward getting capacity. One foreman or (to a lesser extent) one laborer who, either thru inefficiency or pure cussedness, is out of step with the organization, can do quite as much harm as a weak machine—probably more.

Granting that a plant is equipped with good machinery, is well balanced and has an efficient organization, what more is necessary to keep it running to capacity? The answer is—*the prevention of break-downs and the ability to make quick repairs.* Therein lies the secret of success. No machine is so strongly built that it will not wear out and break down—if allowed to do so.

The break-downs that are due to unpreventable accidents, can and should be reduced to a minimum. Preparedness will reduce the loss due to such accidents to a point where they are unimportant. It is with preparedness then that this article will principally deal, altho the prevention of break-downs and shut-downs will receive considerable attention.

FINDING THE WEAK POINTS

The first six months after a new plant has commenced operations will develop practically all of the weak points. One of the invariable rules a manager or superintendent should make on a new plant, or a new manager or superintendent on an old plant, is to *never allow any single part to break or cause trouble twice in the same place,* without making an effort to strengthen the part. A part may break once, and the break be due to flaws, carelessness, or other reasons over which there is little control and it may not be necessary to strengthen it—*but if the same thing happens twice, there is seldom any other reason than inability to stand up to the work required.* In the vast majority of cases, strengthening a part can be done without very much extra expense, and in any case with less expense than the loss incurred by constant shut-downs and consequent decreased output.

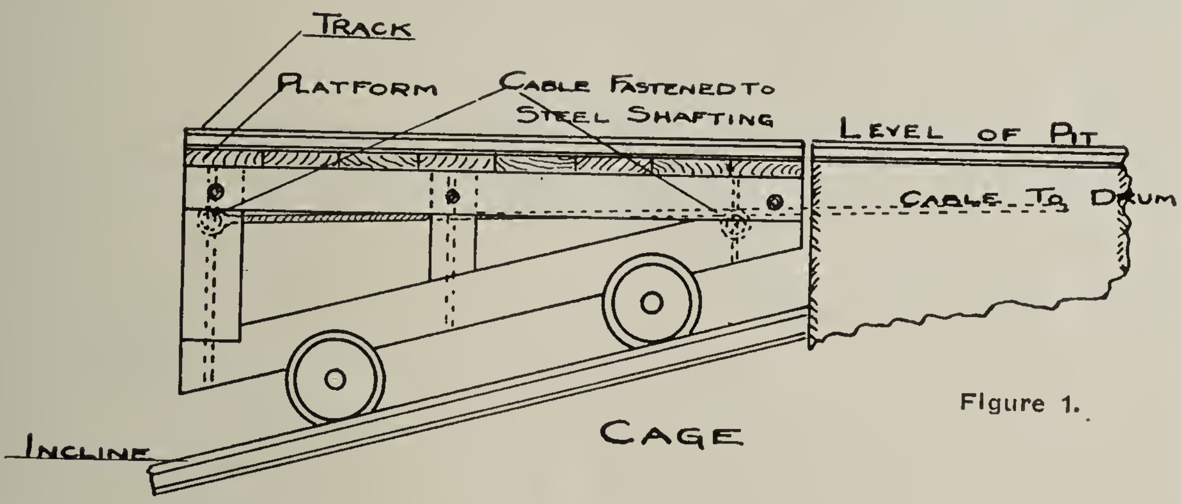


Figure 1.

As an example of strengthening a piece of equipment, the following is cited. The pugging shaft on a long pug-mill broke where the hex portion was turned down to pass thru the marine thrust. A new shaft was ordered by express. During the interval of several days between the time of the break and the arrival of the new shaft, half of the plant was shut down. Within a week after the new shaft was put in, it broke in exactly the same place as the first. Such breakages might have kept up indefinitely, but when the second shaft broke, the hex portion of it was taken to a forge shop and a piece of ordinary cold rolled shafting, *one-half of an inch larger in diameter than the original,* was welded to it. The thrust rings were bored out to fit the new shaft and the bearings rebabbitted to take the larger diameter. There has not been a particle of trouble with that machine since.

In another instance the knife holders on a pug-mill shaft would break off near the hub, allowing a knife to drop to the bottom of the mill. This generally resulted in the breaking of several more, due to contact with the broken piece. A pattern was made, providing ¼ in. more metal all over, with a heavy fillet at the weak point. The trouble ceased at once.

In still another instance the cast-iron ring or front piece, to which the dies are fastened on a hollow-ware machine, broke. Another was procured and the same results followed, due to accidental stiffening of the clay. Instead of duplicating this front a third time, a steel one was made. *The trouble never occurred again.*

SOME PLANTS SEEM TO "GET TIRED"

These instances are cited merely to illustrate the point that if a weak point in the equipment is found, it is, as a general rule, a very easy and inexpensive matter to strengthen it. Time and again the writer has come in contact with plants where no effort is made to overcome a weakness of this kind. Possibly a duplicate part is kept in stock and put in when necessary, or else the express company is called upon, *while the plant shuts down.*

The writer has in mind a plant which is operating a very troublesome machine. All of the trouble is caused by the constant breaking of a very light shaft. This shaft has broken twice in a single day and seldom lasts more than a few weeks. Yet no effort has ever been made to *eliminate* the cause of the trouble, altho an extra shaft always lies beside the machine ready for instant use. In this day of special steels it would not even be necessary to increase the diameter of that particular shaft, although it might be necessary to have one rolled to order. But special steel would eliminate the trouble.

Some clayworkers would do well to examine the gears and shafting of a fifty or sixty h. p. motor-truck, and then consider *that small as they are, they are called upon to convey as much power as the gears and shafts on some clayworking machines,* altho they are only from one-tenth to one-third the size. It is largely a question of material.

Lack of initiative on the part of the clayworker lies at the bottom of a great deal of the trouble. If he cannot secure a stronger part from the maker of the machine, he simply "kicks" and—keeps on buying. The proper method, under the circumstances, would be to abandon the maker whose machine parts show such weakness and try elsewhere to have parts made that will give proper service.

A PROPER SUPPLY OF REPAIR PARTS

Next in importance to preventing the recurrence of an accident by increasing the strength or improving the design of the troublesome part, is the keeping of a supply of repair parts on hand. It is much easier and cheaper to do this, of course, when the plant has its own machine shop, *but it is far more important on the plant which has none,* especially if a custom repair shop is not easily accessible.

If a clayworker does not know what repair parts he should keep on hand, he soon learns thru "hard knocks." When once a part gives trouble, either thru breakage or wear, he should make it a rule to always have a duplicate within reach. This, of course, means an investment—probably a large one—but it is the best investment a clayworking plant can make. A few days shut down, with the attendant loss, more than offsets the "economy" that prevented a stocking up. Some plants follow this rule, and they generally arouse the envy of their competitors, who constantly wonder how those plants run with so little *apparent* trouble.

In the following, the writer will attempt to itemize the troubles most generally encountered on any sort of a clayworking plant, and the remedies suggested.

SHALE OR CLAY PIT

In the average pit there is probably nothing that interferes with capacity so much as tracks. In the nature of things it is hard to keep tracks in good shape, as they are often damaged by shots. Dirt accumulates upon them and in the switches and frogs. Thru this, empty and loaded cars jump the tracks and, oftentimes, a machine is kept waiting or run under its capacity because of the derailed car or cars. In the writer's opinion, *more pit foremen have "fallen down" on their jobs thru neglecting their tracks than thru all other reasons combined.*

The tracks should be kept clean enough to allow the flanges of the wheels to clear at all times. They should constantly be kept to gauge. Sharp curves should be avoided, for it is generally better to be without them than to put up with the trouble they give. The use of twelve and sixteen pound rails causes much trouble. *Rails under twenty-five pounds should never be used, except for the temporary jumpers,* and even there heavier rails save trouble in the end. Main lines, which need not be disturbed, should be laid with heavy rails and heavy ties. Even standard rails and standard ties soon pay for themselves in such places.

The cars too, often give trouble thru wear, allowing the wheels to either jump or "drop in." This should be especially watched and the wheels bushed or washered so as to keep them to gauge.

When shovels are used, either steam or electric, a very complete set of repair parts should be kept on hand. The nature of shovel work causes constant repairs and attention, and unfortunately the men who handle them are too often of a careless sort. *Wearing parts should be examined daily, either by the superintendent, pit foreman or mechanic, unless a very reliable shovel man is in charge.* Chains, cables, bearings and teeth require particular attention. The pit foreman should watch the face in front of the shovel at all times to prevent "caves" that may bury or injure the shovel.

INCLINE

If an incline is used there are several things in connection with its maintenance and operation that require careful attention. In the first place the use of a standard sixty pound rail will do much to prevent trouble. Many plants operate a system in which the empties are drawn up by the descending loads. In most cases of this kind a hook on the ends of the cable is fastened to the couplings on the cars. The chief difficulty encountered in this system is that frequently the hooks or couplings break while they are on the incline, and the result is a "smash up" at the bottom. These breaks are caused by the crystallization of the iron. *If the hooks and couplings are taken from the rope and cars once a month, and put into a large wood bonfire which will heat them to a dull red, and are then allowed to remain in the ashes until cool, this trouble will be entirely eliminated.* It is preferable to put them in the fire on Saturday night and allow them to remain in the ashes until Monday morning.

Even at best, any haulage system where the cars run up and down an incline, is likely to be troublesome and cause delays. A great improvement is made by the use of a "cage" as shown in Figure 1. This may consist of a platform on wheels, to which the cable is permanently attached. The cars are run onto this platform at the top and off at the bottom, and vice versa.

The distinct advantage of this system over running the cars down the incline on their own wheels, is that the cable can be securely and permanently attached to the cage. An accident on this sort of an arrangement is practically unheard of, unless it be thru the breaking of a wornout cable.

The cable and drum should be thoroly examined by the foreman *each morning.* Too much care cannot be taken in this department, as accidents are generally serious enough to cause considerable damage or delay. A cable should never be allowed to "wear out." As soon as strands begin to break, it should be replaced, or cut and spliced.

STORAGE SHED

The storage shed should be kept full of clay. If this rule is ahered to, the source of supply can be cut off for several days or even weeks, thru accident or bad weather, and the plant can still run to capacity. Such things as the burying of steam shovels, the collapse of inclines or trestles, the burning out of dynamos and motors *will happen,* and in such cases the storage shed may be a "life saver."

When conveyors are used in the shed, they should be frequently examined—especially the bearings on the idlers and pulleys. The trough should be often cleaned, as the friction frequently causes the belts to tear if dirt is allowed to pile up under them. All conveyor belt joints should be submitted to daily examination. Conveyor belts have a way of tearing out at the fasteners without warning, and in some plants a break-down means a shut-down in the plant.

POWER PLANT

The power plant very seldom causes a shut-down, but that is no reason for its being neglected. Steam engines are easy to keep in first-class running order, principally because the parts are easy to see and easy to get at. It is an excellent rule to have the cylinder head occasionally taken off, in order to see that the large nut which holds on the piston is tight, and that the piston rings are intact. When an accident does happen to the engine it is serious, and attention given to prevention is well worth while.

Boilers are little likely to prove troublesome if intelligently handled. The accidents that generally happen to them are cracks in the sheets, blisters, open seams and leaky rivet holes. All of these things are due to carelessness. Plant operators are too much inclined to leave this department to take care of itself. A glance thru the boilers at the time of washing out takes but a moment and should always be done by the superintendent. *Intelligent firing avoids the other difficulties.*

(To be Concluded in the December 7 Issue)

Ten Dollars for the Best Suggestion

Beginning with the first January issue, "Brick and Clay Record" will discontinue the publication of tables in its Superintendent's department. What would be the very best thing to publish instead of these tables?

Ten Dollars in Gold to the Man Whose Suggestion is Adopted

Governor Ralston, of Indiana, Placing Brick Bearing His Name in Martinsville's Dixie Highway Monument

Miss Marguerite Mars—"Queen of the Dixie Highway"

Hoosiers Complete First Brick-Paved Road on Dixie Highway

Indiana's Chief Executive, Local Beauty and Carnival Spirit Feature Dedication of Vitrified Brick Unit in Great North-and-South Highway

THE UNTIRING ENERGY of a girls' sorority, the co-operation of a brickmaker and the progressive spirit of a Hoosier town all combined to make Martinsville's "Dixie Highway Day" celebration an unqualified success.

The rivalry between cities in Indiana for the routing of the Dixie Highway was as spirited as anywhere from Chicago to Miami while the commissioners had the matter under consideration last spring. When they decided to give it to the "Scenic Route" from Indianapolis to Louisville, the citizens of Martinsville, Ind., were elated. To show their appreciation and the fact that they were in earnest in their desire to be included in this great North-and-South highway, they immediately decided to improve permanently a two and one-half mile stretch of road leading south from the city limits by paving it with brick.

Wasting little time, the county commissioners soon let the contract for the brick pavement. But such an important epoch in Martinsville history was not to be passed without a fitting commemoration of the event, and so a celebration was planned for September 15 which featured Governor Ralston of Indiana, Carl G. Fisher, father of the Dixie Highway, and other notables at the laying of the first brick.

But something more lasting than the memory of a joyous holiday was left to mark the day's festivities. A monument of paving-brick was erected at the point on the road where the improvement ends, the funds for this work being raised by the Tri Kappas, a local sorority, who sold the brick used in the monument at twenty-five cents each to the citizens of the town.

I. G. Poston, of "Oriental" brick fame, "lent a hand" to make the girls' scheme more interesting by offering to stamp the name of the purchaser on each brick before it was burned in his kilns. In this way the funds necessary for erecting the monument were easily raised. A large brick with Governor Ralston's name upon it was provided, and in the illustration at the head of this article, he is seen laying this brick in the monument, which marks the start and completion of the first permanent improvement since the establishment of the Dixie Highway.

Altho the date set by the Governor for his part in the ceremonies was September 15, the contractors had the base for the pavement ready long before that time for almost a mile from either extremity of the improvement. As those in charge of the celebration did not want to rob Indiana's chief executive of any glory, the laying of the brick was held up so that he might perform this function, an honor which was fully appreciated.

When the dawn of September 15 came, it found Martinsville in a tremor of excitement. Automobiles decorated with bunting and flags dashed to and fro on the city's streets, while business men were engaged in appropriately decorating their stores and shops for the occasion.

BIG DELEGATION MEETS THE GOVERNOR

About eleven o'clock in the forenoon, an automobile caravan, bearing Governor Ralston, Carl G. Fisher, newspaper men and other distinguished guests from Indianapolis, appeared at the city limits under the escort of John E. Northway, secretary of the Martinsville Chamber of Commerce. Here it was met by two bands, a full company of the Indiana National Guard, school children who had been dismissed for the day and automobiles carrying town officials. The procession moved through the town, over the Dixie highway and to the outskirts. Here an immense crowd—estimated at ten thousand people—had already gathered to witness the ceremonies.

PAVING BRICK MONUMENT DEDICATED

After the proper introductory remarks, the Governor was introduced. Peeling off his coat, he proceeded to lay the brick bearing his name in the monument, having first requested that the Tri Kappa girls come forward and form a background. He then said a few words expressing his pleasure at the circumstances that had led up to his participation in the ceremonies, after which he and Carl Fisher laid a brick in the road, amid the click of newspaper and moving picture cameras. Moving pictures were taken of the whole day's festivities and are now being used by Field Secretary Gilbreath of the Dixie Highway Association in its work with other communities.

In the afternoon a monster parade and street pageant was held—the largest ever witnessed in Martinsville—the central figure of which was the "Dixie Day Queen." The bands, militia, police, fire-department, uniformed lodges, all of the school children and a mile of automobiles and carriages participated, as did also the Governor and distinguished visitors. The goal of the parade was the County Courthouse, which was bedecked and draped with Old Glory until it lost its gloominess in the bright September sunshine amid flashes of red, white and blue, and the winsomeness of the queen and her maids.

The Tri Kappas, an Energetic Group of Hoosier Girls Who Added the "Punch" to the "Dixie Day" Celebration

GOVERNOR CROWNS DIXIE HIGHWAY QUEEN

The exercises at the courthouse consisted principally of oratory by Governor Ralston and the crowning of Miss Marguerite Mars as "Queen of the Dixie Highway."

Right here it is well to state that the queen was elected in a voting contest conducted by the Martinsville Chamber of Commerce and a local theatre. Miss Mars is a member of the Tri Kappas, who were responsible for the brick monument that had been dedicated in the morning. Besides handling the sale of the brick for the monument, they decorated automobiles and found time to elect Miss Mars as queen. The girls worked unceasingly for her in the contest, which she won by a margin of nearly thirty thousand votes.

Carl Fisher and Field Secretary Gilbreath assisted the Governor in the crowning ceremonies, following which the queen was presented with a beautiful bouquet by Mr. Fisher, a "Dixie Highway" sash by Mr. Gilbreath and fifty dollars in gold by President Roy E. Tilford of the Martinsville Chamber of Commerce.

Thus closed the "Dixie Highway Day" celebration in which the seat of Morgan county, Indiana, demonstrated to southern road builders that in the north the spirit of good roads also exercises a patriotic influence. Down South, millions are being spent at this time in building the Dixie Highway; in the north, the people are just taking hold of the project. Martinsville took hold with a grasp that was thrilling in its enthusiasm and gratifying in its wise

Brick-Paved Section of Dixie Highway Looking South from Point Where Governor Laid First Brick. This Is the First Permanent Improvement to be Started and Completed Since the Establishment of the Great North-and-South Road choice of paving material. In selecting brick for the improvement, the city has set a good example to other towns along the highway, which sent large delegations to the ceremonies. The Martinsville strip of road is well-built, being sixteen feet wide and laid with a good quality of paving brick, on a sand cushion over a concrete base. There is to be a three foot grade sloping from either edge of the pavement for drainage and to allow unusually wide vehicles to pass.

Martinsville went to bed "dead tired" the night of September 15, but was up with the sun the following morning shaking hands all around, and saying in a self-satisfied way: "Well, it was some day, wasn't it?" And the echo answered: "You bet your life it was."

Sanitary Pottery Shows Wonderful Growth

In seventeen year the production of sanitary pottery has jumped from a comparatively small amount to a production valued at $7,974,269 in 1914.

No other article made of clay has experienced such a wonderful growth within so few years. The greatest increase is noted in two states, namely, New Jersey and West Virginia.

In the production of sanitary pottery, New Jersey is, of course, the leading state, with a total sanitary ware production in the fiscal year of 1914 valued at $5,238,013. In fact, the output of sanitary ware in this state was 64.24 per cent of the total production of sanitary ware in the United States for the twelve months.

There are more plants manufacturing sanitary pottery now than ever before, there being a gain of two in 1914 over the previous year.

AFTER LAYING THE FIRST BRICK IN MARTINSVILLE'S ROAD

A Portion of the Crowd that was Snapped Following the Brick Laying Ceremonies. Reading from Left to Right, the More Prominent Parties are: 1 and 2—Cunningham Brothers, Contractors Building the Road; 3—Carl G. Fisher, "Father of the Dixie Highway"; 4—Hon. J. C. McNutt, Vice-Pres. Indiana Dixie Highway Assn.; 5—John E. Northway, Secy. Martinsville Chamber of Commerce; 6—Governor Ralston, of Indiana; 7—W. S. Gilbreath, Field Secy. Dixie Highway Assn., and 8—I. G. Poston, Who Made the Brick for the Road. Just Behind the Governor Is Standing Hon. Wm. A. Cullop, Congressman from the 2nd Ind. Dist.

British Embargo on China Clays Lifted

Considerable satisfaction is being felt among English china clay exporters that shipments are now permitted to come to the United States without interference.

The official English order prohibiting exports of china clay, except to British possessions and protectorates, caused considerable alarm at the time among exporters, with the result that the English China Clay Association made representations promptly to the war trade department, asking that the regulation be modified in respect to trade with the United States, which request was granted.

The difficulty that stood in the way of exporters was in chartering steamers and the liability for demurrage. What they were required to do, if they wished to ship to countries other than British possessions and protectorates, was to obtain export licenses, but there was the possibility of considerable delay occurring. The order necessitating a license, however, has since been waived so far as America is concerned.

The object of the English government in placing an embargo on the exports of china clay was to put a check on Germany's obtaining supplies through certain neutral countries. Those in authority did not feel justified in discriminating between the neutral countries, and so gave a general order, which has now been modified.

The view, however, is now generally entertained in England that it would be an unwise policy to restrict china clay exports to the United States, as the possibility is very remote of transhipments being made from the United States to Germany.

New Treatment in Cleveland Building

Unique in character and design is the treatment of the Richman Bros. Co. new building, on East 55th street, in Cleveland, Ohio. The contract for the face-brick has been awarded to the Hydraulic Press Brick Company. The building is "E" shaped with the upright as the back of the building, and the top and bottom parallels fronting on side streets. From each point of the upright an unusual facing process presented itself, as this portion of the building consists mainly of pilasters and spandrels. Co-operation between the engineers of the Hydraulic Press Brick Company and the members of the staff of Christian, Schwarzenburg & Goede, has resulted in an entirely new scheme of handling a factory building. The combined fronts of the buildings are 1,000 feet in length. There are fifty pilasters, paneled with 5 x 5 inch peacock blocks, surrounded with a border of brown "Shervan" brick. The spandrels are relieved by pattern-work. This, according to F. H. Chapin, manager of the Cleveland office of the Hydraulic-Press Brick Company, is a new method of working out an old problem. The building is five stories in height. "The market for press brick in Cleveland is in contrast to that in other parts of the country," says Mr. Chapin. "We have been doing exceptionally good business, and more recently we have noticed renewed efforts on the part of contractors to get under roof before the frost arrives. Cleveland business, as a whole, is better this year than last."

Iowa Still Leads in Drain Tile Production

According to the annual report of the Iowa Geological Survey covering the year 1914, Iowa continues to lead all lead all other states in the production of drain tile.

Cutting the Coal Bill on a Clay Plant

Following the Fuel Waste, Comes Loss of Time, Loss of Labor, Loss of Capacity. Here is Shown How to Avoid Much, if Not All of This Trouble

By W. C. Rathfon

(*With the Chicago Fire Brick Company, Brazil, Ind.*)

THE COST OF FUEL is proportionately large to the other elements of expense that make up the total cost of production in clayworking plants. One noted authority states that more than half of the brick-making factories waste more coal than they use—that is, they get less than half of the heat efficiency that could be obtained from the coal were proper precautions taken and proper burning systems introduced.

Very few plants figure that their clay costs them as much per thousand brick (or ton equivalent), as does the coal to burn the same quantity of ware. Yet if their clay waste were fifty per cent—if only half of the clay that came to the pans were used and the balance thrown away—they would very quickly find a way of utilizing that waste.

Yet, when it comes to fuel waste, someone or something always seems to stand in the way of economy. Generally it is the worst of clay-plant "reactionaries"—the burner.

For instance—tell the average burner that he is taking too much time to conduct a burn and he will defend himself by saying, "We can't burn properly and hurry the kilns. We have tried it, and we fell down." The truth of the matter probably is that he has attempted too sudden a change in his method of burning—has gone beyond the limits of the clay that he is maturing and brought destruction to the ware and woe to himself. With a poignant memory of that one failure in mind, he firmly decides never again to try his hand at saving fuel by shortening the burning period. "Economy is all right in some places," he figures, "but not in the coal pile."

Despite which, it is a fact that the saving of coal is a simple matter, if carried on carefully and systematically. Before trying it, it is well to find out what other clay plants, manufacturing a similar line of material and using processes not altogether different from yours, are doing. If you learn, for instance, that in the neighboring plants the burning is accomplished in seven days, and it takes nine or ten days to burn the same ware in your plant, why—you have learned something. Just how much you have learned will depend upon your ability to adapt the methods of those plants to the plant that you operate.

It would be well, too, to learn how much coal those other burners use to burn a ton of ware, and what coal they use. If they have cone records, pyrometer records and settle records, and will show them to you, they will probably point the way to your success along the same line. These and the quantity and quality of the coal—that's what you want to get in your head and carry home.

Of course, we are assuming that yours is one of the plants that is wasting coal—that's why we speak of your having a ten-day burning period and some one else having a seven-day burning period on the same ware. Of course, if the proposition is reversed, and you see some burner from a ten-day yard coming around your seven-day yard, you will know what kind of information he is after and "be governed accordingly."

One or two things are fairly certain; on the seven-day yard you will find pyrometer or cone or other records carefully kept on each burn and—*the coal will be weighed to the kiln.* It may be that the coal isn't being weighed to every kiln *now*—but there *was* a time when it *was* weighed, and there *is* a record. You will have to keep tab on your coal and make a similar record before you can go about cutting your fuel cost in earnest. You may just as well make up your mind to that, and if you don't want to do it, why just agree with your burner that "economy is all right in some places, but not in the coal pile"—for you will never bring economy to that point in your plant.

This is the proposition; you must know how much coal you are burning, in order to tell whether the changes you are making in your burning system are right, or not. Nor will it do to calculate the coal consumption per kiln from the coal bill, divided by the number of burns, for that would make it necessary to inaugurate the changes in burning in all of the kilns at the same time and it would be a long time before you could discover what particular change had been beneficial, and what hadn't.

When the coal is weighed to each kiln, the records will speedily show good and bad moves; the first can be carried on to other kilns and the second confined to the one—there is no excuse for making a mistake a second time.

CHANGES IN THE METHOD OF BURNING

More coal is wasted thru burning too long than in any other manner. In order to shorten the time, the burning should be "speeded up" very gradually. Suppose, for example, that the regular manner of burning is:

Watersmoking	75 hours at 120° F. per 12 hours
Heating up	22 hours at 300° F. per 12 hours
Oxidation	30 hours at 180° F. per 12 hours
Vitrification	10 hours at 300° F. per 12 hours
Soaking	12 hours

Let the next burn in the same kiln be conducted on the same schedule, except that the watersmoking is done in seventy-two hours at a rate of 125° F. per twelve hours. If this change gives no bad effects, then conduct the following burn (so far as the watersmoking is concerned) in sixty-nine hours at 130° F. per twelve hours, and so on until the ware begins to show signs of too rapid watersmoking.

In this way the burner will quickly learn the very fastest time that can be safely made during watersmoking; his next care will be the heating up process, then the oxidation, vitrifaction and soaking.

In finding the limits in this way, there is no danger of spoiling a whole kiln of ware, for each change is too slight to do a great deal of harm. The last part of the burn—the soaking—may be shortened by using Seger cones in the top and bottom of the kiln. Since the heat travels to the bottom quicker when the draft is partially cut—and remains concentrated in the pockets if the draft is cut too much—the burner should proceed to find out by experiment just how much to cut the draft in order to most quickly heat the bottom.

This problem is easy to solve; for instance, suppose the temperature required in the top is cone 1 and in the bottom cone 04. Place cones 04, 02, 01 and 1 in the top and cones 010, 07, 05 and 04 in the bottom, about four feet from the door and about two feet high. Set the damper or draft plate the usual way for soaking and record the time the bottom cones go down, after the desired cone has gone down in the top and the top is being held constant by open fires.

The next time this kiln is burned, set the draft a little less and again note the rate that the bottom cones go down. These two tests will show whether too high a draft or too low a draft has been used for soaking. Now all that has to be done is to continue these trials until the draft which gives the maximum rate of heating up the bottom has been found.

THE CHOICE AND CARE OF COAL

Where several different kinds of coal can be obtained at the same price, it will pay to secure a sample of each one, and then have the samples tested for heating values. This can be done at any commercial chemical laboratory for a nominal price—possibly $2—and it may save the plant something like ten per cent of its fuel bill. A ton of coal that is even fairly good will be equal to one and one-tenth tons of poor coal, and ten per cent less will be required to burn a kiln. If the coal is stored for any considerable length of time, it should be under a rain shed, for it has been found that coal loses its heating value very rapidly when exposed to the weather.

REGULATION OF THE DRAFT

Another way to reduce the coal bill is to cut the draft during the high fire. If the fires roar, the draft is too high and should be gradually reduced. By comparing the weights of coal burned, the most efficient drafts can be found and, once found, can be closely approximated in successive burns.

Too low a draft does not make heat fast enough, while too much draft pulls most of the heat up the stack, at the same time failing to heat the bottom. Since the draft is not always the same, due, in great part, to varying weather conditions, a draft gauge should be used. This is better than to attempt to secure a standard by regulating the size of the opening left by the damper.

LOSS OF HEAT DUE TO EXCESS OF AIR

A common cause of fuel waste is in using more air than is necessary to maintain a clear atmosphere in the kiln. Of course, a little excess air must be used to prevent discoloring the ware and, in the case of brick burning, to prevent the rolling of the ware, but some burners use two or three times as much air as is required—probably because they are afraid of "filling the pockets" or "smoking the ware."

Altho the article by C. O. Arbogust that appeared in the October 19 and November 2 issues of "Brick and Clay Record" states that excess air must be used as a carrying agent in order to heat up the bottom of the kiln, yet at the same time, this idea may easily be overdone. From my own experience, I have found that less coal is consumed, and better time made, if the excess air be kept as low as can be safely done without filling the pockets by the rolling of the ware. Then, when the top of the kiln is *nearly* mature, the excess air is increased by opening the fires wide, and the draft is partially cut, with the result that the heat is rapidly blown down to the bottom of the kiln. This method will produce just as good a kiln of ware as the more expensive method of carrying a large amount of excess air continually.

The most effective manner of heating the kiln (with respect to fuel consumption) is to regulate the dampers and fires so that the kiln gives a very slight smoke for three or four minutes after firing. This smoke will not discolor the ware and is an indication that the proper amount of air is being used.

CHANGES IN THE KILNS

Nearly as much of the fuel loss can be traced to poorly designed or badly damaged kilns as to the inexpert methods of burning that are in force at many yards. Here again the weighing of the coal to the kilns will be found a great help. If a kiln is wasting fuel (or using more fuel than the other kilns use in producing the same quantity and quality of ware) it may be because:

1. The flues are improperly regulated.
2. The fire-boxes are the wrong size.
3. The insulation of the kiln against radiation is poor.
4. Water is soaking into the kiln.

The floor and flue openings must be regulated by experiment. If a kiln shows trouble, in heating up the bottom too slowly, and has a stronger draft than is necessary, then—in nine cases out of ten—the reason is that there are too many openings from the floor into the under-floor flues. The remedy is to choke up a part of these openings as near to the floor level as possible.

The floor should act as a damper to check the flow of fire gases, for this function causes it to absorb heat from the gases that otherwise would go flying up the stack. The more resistance there is—that is, the fewer openings there more resistance there is—that is, the smaller and fewer openings there are in the floor—the faster the kiln will heat up. Of course, too much choking will check the draft so much that the fires will not burn properly. Therefore the choking should be done gradually and the effect of each additional choking in subsequent burns watched and recorded very carefully.

The fire-boxes should be large enough to heat the kiln at the maximum rate that the ware will stand. Any larger size is wasteful, for it causes an excess of heat to go up the stack. There is no sure rule for the size of fire-boxes—if they tend to make heat too fast they should be made smaller, and vice-versa.

All cracks in the kiln lining should be kept daubed up, for the lining must do most of the work of holding in the heat. It should be tied to the outer wall, because otherwise it will draw away from the latter and leave small chimneys along the walls, through which heat will escape.

The walls of the kiln should be at least twenty-one inches thick; a *seventeen-inch wall radiates excessive heat.* The crown should be low, in order to furnish less radiation surface. A low crown will also throw the heat to the bottom. Since the crown radiates seventy-five per cent of the heat that is lost by radiation, it should be covered with platting and be kept well slushed. One heavy rain upon a poorly slushed kiln will cost more than two or three slushings.

A very important item that often passes unnoticed is the loss of heat due to wet ground around the kiln bottom. Many of the phenomena of clay plants—the kilns built on the same lines and at the same time having vast differences in fuel consumption—can be traced to wet ground. This point is one that should be investigated and, if any dampness is found near the kiln, a tile drainage system should be installed at once—laid all around the kiln and to a depth that will be below the level of the deepest flue.

These improvements must be taken up, one at a time. The effects should be carefully noted and considered before any other change that *might* be an improvement, is attempted. If two or three changes are tried at once, it may be that one is doing harm while the others are doing good. The total result may be some improvement, but a still greater gain would be made if that one change in the kiln or in the process had never been started. Catch it with your eyes open—don't trust to luck.

Since no two kilns will act exactly alike, each must receive individual treatment. Each must have its individual set of records. Each must be made to do its work with the least possible waste of fuel and time and labor.

When each of your kilns have been made to do its very best, and when each of your kilns has a set of records that is so clear as to make it possible to go ahead and *keep that kiln doing its individual best,* burn after burn and month after month, you can figure that you have a pretty good burning system and—better than that—that you have a pretty good man running it. And it might be well to think of that, when you come to check up on how much money he is saving you.

Cleveland's New Mayor Favors Paving Brick

One of the most significant and most favorable situations in which paving-brick manufacturers figure has developed out of the recent election in Cleveland, Ohio. With the selection of Harry L. Davis by the people as mayor, it is believed a new era in brick pavement is likely. Paving-brick manufacturers consider Mr. Davis' statement, that he will consolidate the street cleaning and street repairs departments, as one of tremendous importance. Mr. Davis has promised economical management of the city, and his idea to combine these two departments was the principal plank in his campaign platform.

Members of the National Paving Brick Manufacturing Association are especially interested in proper paving construction, and they see in Mr. Davis' propoganda a splendid opportunity to have this carried out. Cleveland has been notorious for its poor paving in the older and downtown sections of the city. This has been due to the stringency in the city's finances.

By the uniting of the street cleaning department with the bureau of repairs the neglected factor in paving economy will come into its own. According to Gustave H. Hanna, superintendent of street cleaning, this item is more important than the first cost of the paving or the cost of maintenance. In this connection it is well to note that brick paving embodies all the features making for quick and easy cleaning. With a grout filler a smooth, even surface is formed, eliminating the necessity of the street cleaner from sweeping into the cracks such as develop when stone blocks are used.

On a well paved brick surface, it is pointed out, wind from passing vehicles drives the refuse into the gutters, where nine-tenths of the sweeper's work is done. Flushing drives the balance of the accumulation of dust into the gutters. It has been estimated that one sweeper, one wagon, one helper and the use of a flusher should cost $3.27 per day per mile. This could not be done, according to Mr. Hanna, except where properly constructed brick paving is used.

How earnestly this feature is being considered is demonstrated by the work of the assistants under City Engineer Hoffman in the case of Ansel Road, which was ripped up to provide for the installation of conduits from Euclid avenue to Hough avenue. When the brick was replaced, there was no perceptible difference (except where a different color brick was used) from the original construction. How money will be saved on this strip is self evident, and tends to prove that Mayor Davis has in mind that wasted time in trying to clean a poorly repaired street will cost more than the original outlay in replacing the brick properly.

County Engineer W. A. Stinchcomb is praised by brick manufacturers for his excellent work thruout the county. This construction is of the highest class. Examples of this work are seen in Lakewood and East Cleveland, the Berea road, and others. More than 25 miles of paving now is under construction, the possibility for completing the work before winter sets in, being aided by continued favorable weather.

It is believed that the construction now under way in Cuyahoga county will make for the adoption of vitrified brick for paving by other cities in the state.

J. R. Zmunt, attorney-at-law and an advocate of brick pavements, is a newly elected member of the council from the seventh ward. Known to paving-brick men thruout the country, his entrance into the Sixth City government is expected to give added impetus to the trade.

Tests Being Made on Springfield Shale

A fortunate discovery of a deposit of high grade shale is apt to be the making of one of the brick plants at Springfield, Ill. This plant has been shut down for some time, but recently found that, by using the shale deposit just uncovered, a high-grade stiff-mud brick could be made, and money made in the making. Samples of the clay have been sent to the state university at Urbana, and if the reports are satisfactory, a new equipment of machinery will be purchased, and be ready for operation in the spring.

Chicago Concern Wants Face-Brick

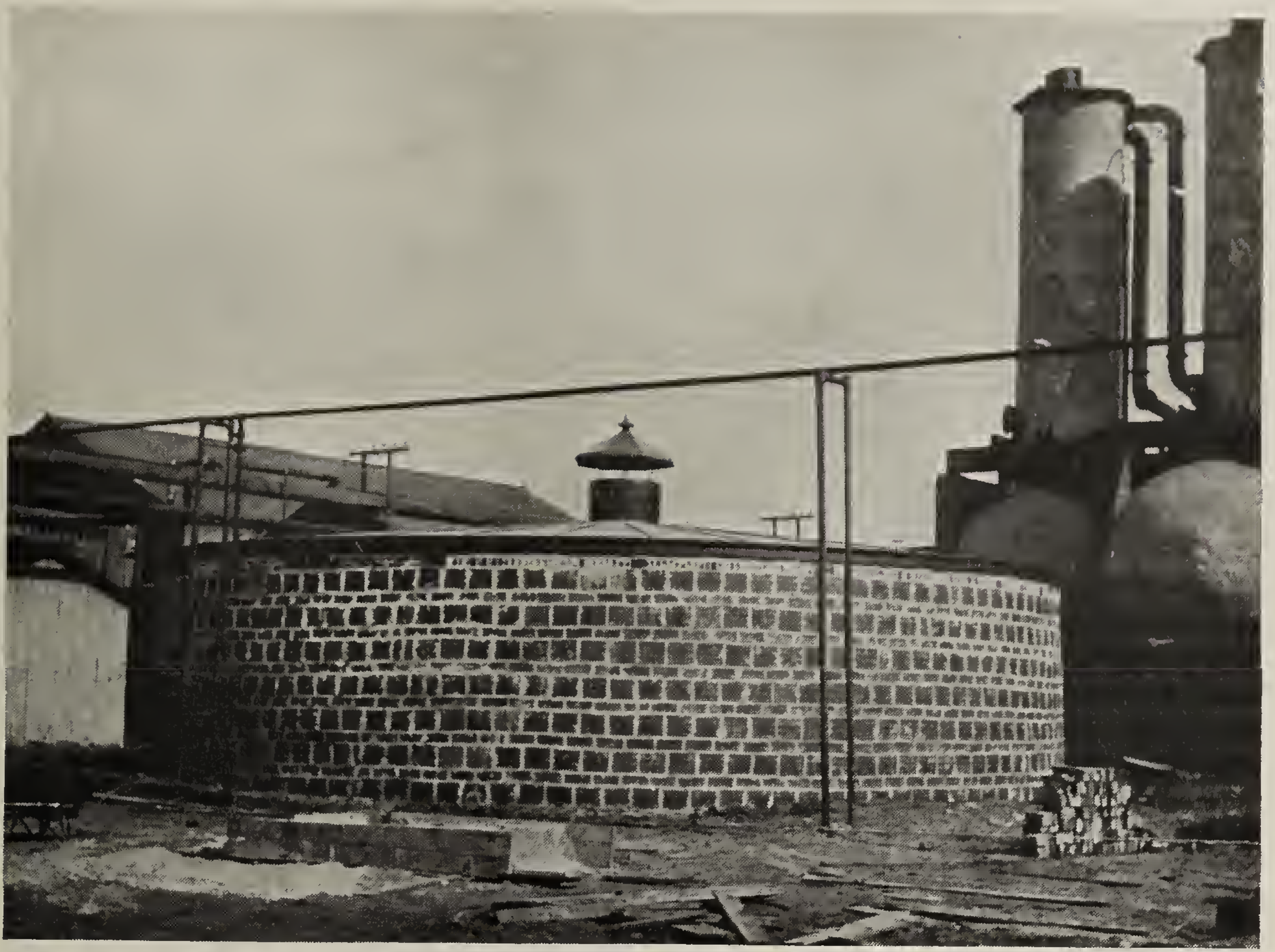
Chicago has always been known as one of the best face-brick markets in the country and manufacturers who have established satisfactory agency connections in the Chicago market are fortunate. News comes to us that a prominent Chicago dealer is anxious to extend his lines and if any of our readers are manufacturing face-brick at a point sufficiently near Chicago to make his line competitive, information to that effect will be forwarded to the dealer mentioned if a letter covering the necessary data is sent to "Brick and Clay Record."

Detroit University Has a Brick Library

The Detroit Brick Manufacturers' & Dealers' Assn. has donated to the Engineering Department of the new University of Detroit a selection of twenty-five books on brickmaking. The association is now planning a series of twelve blotters—one for each month—which will be used during the coming year. On each blotter will appear some brick building with historical associations and some descriptive matter. The association has leased a space approximately 14 ft. by 13 ft. as a permanent brick exhibit in the new Builders' & Traders' Exchange, in the Penobscot building.

NEW USES for burned clay products are constantly being uncovered. In this instance, an enterprising Kansas hollow-tile manufacturer saw the possibility of his product's solving a problem that was perplexing a great and wealthy industry.

As a result of his ability to see the strong points of his own ware, this man has sold hollow building tile to three Kansas oil plants and so opened a new field for burned clay.


Hollow Tile "Jacket" on a One Thousand Barrel Tank at the Standard Oil Company's Plant, Neodesha, Kan.

Air Sandwich Cuts Oil Loss

So Kansas Refiners State After Using Hollow Tile for Tank Insulation

HOLLOW TILE, in the dual capacity of an evaporation reducing agent and an effective protection against fire in gasoline and petroleum storage tanks, has just made its appearance in Kansas.

While this use of hollow building tile has hardly passed beyond the experimental stage, says the "National Petroleum News," heads of the companies which have used it assert it is a success. The Underwriters' Laboratories at Chicago are now concluding an extensive test to determine its true value as a fire protection. They say its use will greatly reduce the insurance rates on oil in storage.

The Cudahy Refining Company and the National Refining Company at their Coffeyville (Kan.) plants, and the Standard Oil Company, of Kansas, at its Neodesha Works, are among the plants which are using building tile for this purpose. The Cudahy company has gone extensively into the development of this form of insulation. A combination of tile wall and fireproof roof has been secured, which Assistant Superintendent E. W. Isom states is as near fire and evaporation proof as it is possible to make a gasoline tank. This company has at present four tanks insulated in this manner.

For years refiners have been struggling with the problem of cutting down the loss, particularly of light gravity oils, through evaporation from steel storage tanks which are exposed to the hot rays of the sun. That the loss incurred from this source was considerable is hardly to be doubted, especially when one remembers how quickly gasoline evaporates even under ordinary temperatures when exposed to the air. Yet until within a year or so, very little had been actually accomplished in the way of reducing this loss without sacrificing some other feature in the storage system which made the improvement a doubtful one.

For instance, many refiners have placed their tanks underground, thereby reducing by a large figure the amount of evaporation taking place and providing a better protection against fire. Tanks in this position present a much smaller surface to the atmosphere and are, therefore, cooler than those above ground. Also, because of their minimum exposure, they are better protected from an attack by fire. There is one feature, however, of the underground tank that has militated against its being an economical receptacle for the products of the still, and that is its tendency to leak, due in many cases to an injury received while being lowered into its earthy resting place. In this operation it is a very easy matter to strain a rivet, and refiners tell us that it does not take long for petroleum or its products to find an outlet through the slightest weakness in the container. Such a leak, small as it may be at first, soon grows to large proportions and usually is the source of considerable loss in oil before being discovered, especially in a working tank which is being constantly filled and emptied of its contents. Even after such a leak is located, its repair is not a simple or inexpensive job, for an excavation is generally necessary to get at the leak—in many cases the whole tank has to be unearthed.

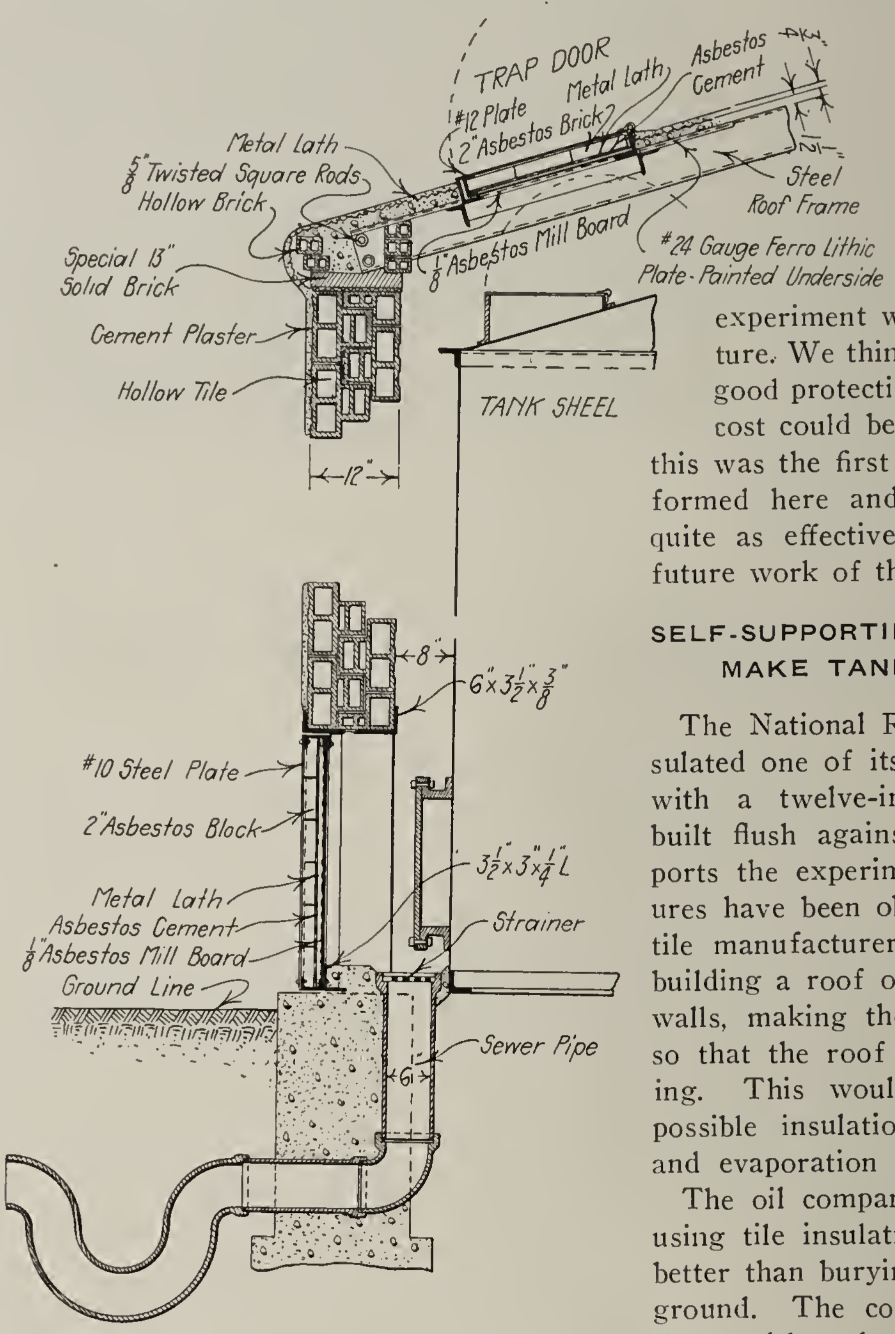
But these troubles are now only the memories of bygone days—at least, at most of the large refineries in Kansas. Just how the refiners' oil tank difficulties were overcome should be of interest to every manufacturer of hollow building tile because it opens up a new field, rich in possibilities and substantial in reward to those who will push their material with refiners within shipping radius for tank insulation.

WIDE-AWAKE TILE MAKER GETS "TRY OUT"

After some missionary work on the part of a Kansas hollow tile manufacturer, and some deliberation by the Cudahy Refining Company's engineers, it was decided to "try out" a hollow tile jacket on one of its tanks at Neodesha with a view of determining to what extent this material, with its insulating air spaces and unburnable body, would cut down evaporation losses and fire hazard.

A twelve-inch wall of hollow building tile was first built around a tank at a distance of eight inches from its exterior surface, the cost of this part of the work being $210. Resting upon this wall and covering the tank, was then built a fireproof roof, equipped with a ventilator and a steel trap door.

The result has been very satisfactory, the installations on oil storage tanks containing gasoline, naphtha and other low-boiling-point oils having effected a large saving in evaporation and at the same time acting as an adequate protection against fire. But these are not the only advantages, for the old trouble with leaks, so long a source of considerable annoyance and loss, is eliminated with the housing herein described and illustrated, a sufficiently large space being provided between the hollow-tile wall which surrounds the tank and the steel shell itself, to allow a man to inspect the tank and locate any possible leaks. This space is drained by two outlets which are connected to a sewer, thus taking care of any moisture or oil that might gather in the passageway. The tank protection which the Cudahy company has devised also has special features to insure protection against lightning and explosion, all of which are a part of this special design. The cost of doing this work was around $600 for the first tank insulated —a figure which will be cut with further installations.



Cross-Section of Tank Insulation, Showing Method of Construction

NO EVAPORATION LOSS IN TILE-INSULATED TANKS

"Our evaporation loss in the tile-insulated tanks is practically nothing," says Assistant Superintendent Isom of the Cudahy company. "The Kansas sun frequently reaches a temperature well above one hundred degrees, and has given us a chance to test this feature thoroly, and we believe the insulation on our tanks is as near perfect as it is possible to obtain. It is possible to keep gasoline in this style of storage at a lower temperature than that at which it was placed in the tank.

"Conditions at our plant make it impossible for us to give as thoro a test of the fireproof qualities of this style of insulation as we could wish. We believe the Fire Underwriters' Laboratories' test will bring out these qualities, however."

The Standard Oil Company of Kansas has covered a cylindrical tank ten feet high and forty feet in diameter with an eight-inch wall of hollow-tile. Their wall was built flush against the exterior of the tank and no door was built in it. They also omitted the fireproof roof of the Cudahy company and thus cut the expense of their insulation to around $350.

"The tank in question handles very light gravity gasoline stocks, and the tile was placed on the tank to lessen the evaporation loss and not primarily for fire protection," stated J. C. McDonald, president of the company. "We think it does this, altho we have not been able to set aside this tank and fully experiment with it as to this feature. We think it would also prove good protection in case of fire. Our cost could be reduced quite a bit, as this was the first job of the kind performed here and the labor was not quite as effective as it would be on future work of this kind."

SELF-SUPPORTING TILE ROOF TO MAKE TANKS FIREPROOF

The National Refining Company insulated one of its tanks at Coffeyville with a twelve-inch hollow-tile wall built flush against the tank, and reports the experiment a success. Figures have been obtained from hollow-tile manufacturers as to the cost of building a roof of tile as well as side walls, making the arch great enough so that the roof will be self-supporting. This would give the greatest possible insulation, both against fire and evaporation loss.

The oil companies which have been using tile insulation estimate it to be better than burying their tanks underground. The cost of putting a one-thousand-barrel tank underground amounts to nearly $500, varying somewhat according to the difficulties attending excavation work in the particular district where the work is being done. In a great many localities it is almost impossible to put a tank of this size underground because water is found before the excavation is of sufficient depth.

Illinois Stoneware Company Enjoying Banner Year

At a meeting of the directors of the Western Stoneware Company at Monmouth, Ill., recently, President I. F. Dains stated that sales up to the end of the third quarter of the present year indicated that an increase of $100,000 over last year's business would be reached by January 1. It looks very much now as tho plant No. 1 of the company at Monmouth and plant No. 4 at Macomb, Ill., will operate for the next twelve months without a shutdown, except perhaps for necessary repairs. The company's business for the month of October surpassed all previous records.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Regarding the "Complete Building Show"

722. *Kansas—I have read the advertisement on your front cover (Nov. 2 issue) and am interested in the Complete Building Show. I think that clay products manufacturers should come forward and "make good" their claims as to the superiority of their materials for use in buildings. I would like to know, however, whether you are sure that clay products will get a fair show. With all of the money that the cement people have to spend, aren't they liable to "grab off" the best places, and, by spending a lot on their exhibits, make the brick and hollow tile exhibits look shoddy? Are any of the clay products associations going to do anything as a whole, or will it be a case of individual plants showing their product?*

The above question has been answered by mail, but the answer is repeated here, so that others, who may have the same doubts, may be set on the right track. The interests that control the Complete Building Show are worthy of confidence. They are a group of men who make and sell a vast variety of building materials—clay products being an important, but not exclusive feature. Even tho it is necessary to sell space in the show in order that it may be a financial as well as an educational success, the management will not be so shortsighted as to injure the standing of any important building material by letting it be "put in the shade" by some competitive material. At the same time, if the makers of brick and hollow-tile do not come forward and buy space, it will not be surprising if they put themselves in the position of making easy the sales-path of some other material. Aside from the brick selling concerns of Cleveland, the National Paving Brick Manufacturers' Association and the Hollow Building Tile Manufacturers' Association, we do not know of any clay products interests that are working toward a community exhibit. We suggest and urge that letters of inquiry be sent to Ralph P. Stoddard, manager of the Complete Building Show, Leader-News Building, Cleveland, Ohio, asking just such questions as are asked by this correspondent. Don't "pass this show up" on account of some doubt—or wondering what some other fellow is going to do. Write a letter of inquiry and find out. Then make up your mind, one way or the other.

Putting Glaze on Surface Clay Body

718. *Iowa—Will you tell me as near as you can about glazing surface clay? I know nothing about glazing at all, but I have a very high grade surface clay and if I can make glazed silo blocks I could run this plant all the year around if I wished to. Is there a way to dip the blocks so they will glaze? I hope you can give me an answer at once on this, as there is a party who wants to know if my blocks will take a glaze.*

Any answer that we might give you would be based on a guess as to the nature of your clay. Some surface clays will take a salt glaze—the cheapest of all glazes—and others will not. The great majority of surface clays will take a dip glaze, but it is a question whether this method of glazing would not prove so expensive as to make your cost of production too high for you to sell your silo block in competition with silo block that are salt glazed. We would advise your sending a barrel of your clay to your state university and ask them to give it a thoro test—first to determine if it will take a good salt-glaze and, if not, what cheap glaze it will take by dipping. There will be a small charge for the service, but it will be worth all that it costs you.

Clay Used in Porcelain Bodies

719. *Tennessee—We have a fine deposit of what we understand is "china clay." Does this term mean that it can be made into china or porcelain? How do we go about securing a market for it?*

Kaolin, "china-clay," ball clay, pipe clay, "china stone," feldspar, flint, quartz, sand, lime, chalk and calcined bone are the ingredients of the "pastes" that are used by most of our modern potteries. These supply the alumina, silica, lime, potash and soda, with traces of iron and magnesia that are found in all clays when analyzed. Of these materials, the clays rich in alumina and silica, such as kaolin or "china clay" form the body-giving substance; the feldspar or "china stone" furnish the fluxing ingredients for fusing and binding; the flint or bone supplies the stiffening matter for supporting and retaining the shape of the object in the fire. You will see from this that there are a number of constituents to the body of chinaware and porcelain. Your clay may be suited for one of these constituents. The best way of finding out is to send a sample to one of the state universities, with a request for a chemical analysis and a commercial test—the latter to determine its adaptability for use in potteries.

Machinery to Grind Dry Pan Tailings

720. *New York—Some months since, I saw an inquiry in "Brick and Clay Record" relative to the practice (?) of some clayworking plants that provided an auxiliary device for grinding dry-pan tailings—that is, the particularly hard pieces of shale or clay that resisted the action of the mullers and which, unless the pan were frequently cleaned, added to the power consumption without accomplishing anything worth while. I am curious to know whether you have any further data on this point, as I am constantly running up against this trouble. At the present time, I am sending these tailings to the dump, but I know that this is adding to my expense and robbing the clay mixture of one of its best ingredients. I also know that it will very soon be necessary to put in another pan, and I thought that you might have heard of some*

device smaller and more powerful than a pan, that would take care of the tailings; and of some automatic feed that would enable me to send the tailings to the auxiliary device without stopping the pan. This would increase the amount of clay sent to the screens and do away with our present expensive and wasteful process of carting away the tailings.

Replies received to the inquiry noted developed the information that a number of clayworking plants had installed a disintegrator for the purpose noted, these machines being smaller and requiring less power than the dry-pan. In many cases they were installed as auxiliary devices to dry-pans, and have done away with the necessity of putting in an extra pan. The principles upon which these disintegrators work is interesting; in one type, two oppositely revolving cages, which are formed of round steel bars, reinforced with iron rings, are fastened to heavy cast-iron circular disks. The bars of one of these cages project between the bars of the opposite cage; the disintegrator grinds by impact and not between surfaces, the clay being thrown by centrifugal force against other pieces of clay, and against the rapidly revolving steel bars. This process secures the attrition of the clay lumps by blows and without friction. The amount of work that this kind of machine will do in a short period is little short of marvelous.

There should be little or no difficulty in devising an inexpensive and practically automatic system by which the pan could be swept clean at regular intervals, and the material that had resisted the mullers carried to the disintegrator by a short belt or clay feeder.

Storing and Weathering Clay

727. *Nebraska—We are about ready to close our plant down for a couple of months, and are considering several changes that involve the expenditure of quite a little money. Among these is a proposition to build a storage shed in which we can carry a stock of clay sufficient to run the plant during bad weather, or when the supply of clay is irregular. While we have not had a great deal of trouble during the past season, there were times when, if we had been crowding our kilns, we would have gone short on our clay supply. If next year is as busy as we have reason to believe it will be, the storage shed would be a good investment. Are there any advantages, other than the securing of an adequate clay supply, that would follow the installation of a good storage system?*

The greatest advantage that comes from the storing of clay (if we elimate the granted value of having an unfailing supply of clay on hand) is the fact that the clay or shale will be thoroly mixed. Clays vary, even when taken from the same part of the mine or bank. The variation comes, very frequently, from the fact that some of the clay is weathered and some is not. Plants operating with fire-clay that is shipped in from points fairly distant from the plant find that there is a distinct difference between the clay that has been left on the cars for even a day, from that which is fed to the pans within a few hours after it has come from the mine. The effect of the weather grows less each day—that is, there is a greater change in the clay during the first twenty-four hours exposure than there is during the second day, and so on. Eventually it comes to a point where another week—or even month—makes no perceptible change. Where clay contains any considerable percentage of lime, the weathering process improves it, and cases are known where the installation of a storage system with a free circulation of air thru the clay has done away with a tendency toward efflorescence and has, in this way, saved the expense of using corrective chemicals.

The working of a new strata in the mine, or of a different part of the bank, may bring in a clay that is different in its chemical composition from the clay that had been used some days or weeks earlier. Where no storage system is used, this change is bound to bring trouble. The new clay may have a greater shrinkage, or burn to a different color from the old. The storage system will make the change so gradual that it will not be nearly so apt to upset the yard as would a sudden change, wherein the new clay was used without being mixed with any of the old.

Storage systems have been built on so many plants that they are now sufficiently common to have given their builders an opportunity of knowing what form of shed is the best and the most economical to construct and operate. Ask any plant operator who has one whether he would be willing to do without it.

Are Dry Press Brick Inferior?

725. *New York—I am figuring on some property on which there is a deposit of excellent fire-clay, which I have had tested and found to make a very fine flashed face-brick. The tests were made in such a way as to give me the results of the mud wire-cut, mud repress and the dry-press processes. I find that the color of the dry-press brick is brighter than that of the stiff-mud brick, and had about made up my mind to install dry-press machinery when I was told that architects were prejudiced against dry-press brick, and that there would be no sale for them, no matter how good the color might be, nor how favorable the price.*

If any prejudice exists in the minds of architects against brick made by the dry-press process it is easily dispelled by the demonstrations given every day, and every year, of the excellent wearing qualities of some dry-press brick. A brick does not wear well when it is badly made. The process whereby it is made is not the point—it is the fact that the process was not suited to the clay, or to the manner of burning. Dry-press brick have been used in many large cities and, in sometimes after twenty years of exposure to weather, and smoke and dirt, look practically the same as they did when built into the wall. The same may be said of mud-repress—some of them look as well as they did twenty years ago—and some do not.

Dry-press flashed brick are especially successful, for the reason that the "iron-spot" seems to give a certain glaze to the face of the brick, and enables it to keep clean. At the same time, the porous body gives an absorbent bed, which the mason contractors like, for it readily takes the mortar and lays up into a good strong wall.

The man who dismisses dry-press brick as being altogether inferior to mud wire-cut or mud repress, makes a mistake. Some dry-press brick are very poor examples and so are some stiff-mud brick.

Your plant is to be located in New York. Consequently you will look to New York City for at least a part of your market. Investigate the prices obtained there for the flashed dry-press brick that come in from certain New Jersey points, as well as from Ohio. Look at the buildings faced with those brick and find out how long they have been built. Then ask yourself whether a prejudice (if one ever did exist) could live very long, in the face of that evidence of excellent service.

Wants to Buy Fire Clay

724. *Ontario—We are importers of fire-clay in large quantities and at this moment are very anxious to get in touch with some miners other than those of which we know. We would be glad to have the names of any firms mining fire-clay in New York, New Jersey, Ohio and Pennsylvania.*

"Brick and Clay Record" would be glad to receive any information its readers will give it that would be of value to the above questioner.

The Salesmanager

A Department Devoted to the Marketing of Burned Clay Products—Particularly Those That Enter Into Building and Road Construction, Sewers and Farm Drainage

CONTRIBUTIONS TO THIS DEPARTMENT are solicited and will be printed with or without the name of the contributor, as he may wish. A year's subscription to this magazine or a check for two dollars will be sent for each item that is accepted.

WHEN A MAN FIGURES on the possibilities of a proposed investment and the probabilities of its earning good interest, he is well on the way toward being "sold." The difficulty is to start him figuring and to keep him figuring by having a good, long list of arguments ready to hand him each time he has drawn a line and "footed up" a column.

A salesman must be "sold" before he can sell. He must know the good points of his proposition before he can hope to convince any one else. To be exact—he ought to know more good arguments in favor of his product than he ever expects to be called upon to use. Some customers will "figure" longer than others.

The man who is selling drain-tile has to know a great deal about farming. The profit that comes thru the use of drain-tile lies in the production of additional crops; also there is some increase in the value of the land. Both of these points should be used in the selling talk—the permanancy of the investment and the relatively large interest that it will earn. If the tile is a well burned clay tile it is practically everlasting. That is a selling point also, for the farmer need not deduct a certain amount each year for "depreciation." *Every dollar he puts into the tile is a dollar added to the value of his land,* and the interest it will earn will be away beyond the amount of interest he would get in the bank—or on any reasonably safe investment other than tiling.

The Follow Up System

Practically everybody who is in the business of selling brick and other burned clay products used in construction work utilizes some sort of advance information service which is intended to keep him posted regarding projects which will involve the use of material of the kind he is selling. Some concerns take all of the bulletins issued in their territory, having found that in this way they can get the "jump" in many cases, and be "first man on the job" more often than their competitors.

Obviously, having the "tip" on the prospect is not enough. After the original data has been secured, and the initial letter written, some sort of index should be provided which will enable the prospect to be constantly and consistently followed until he is either "sold," "lost" or marked "project abandoned."

Most brick concerns have a rather loose plan in this regard; they file the information but do not have any regular system by which the follow-up work becomes as nearly automatic as possible. Of course, the method to be used will vary with the different branches of the burned clay industry, but the same fundamental principles may be followed.

A card index is about the best form of file for tips on new business, as the cards can be arranged with tabs to indicate the date when the next letter should be written. Also, the cards provide space on which the data secured from previous letters may be noted, so that the complete "history of the case," as a physician would call it, is always immediately at hand. The prospect may write in, for instance, saying that the work has been postponed for ninety days. If the information is all on a card, this can be added without trouble and the card set back in the file as indicated. Then it will come up at the time when another solicitation should be made.

The manager of an information bureau supplying construction "tips" in a certain territory said recently that the concerns which are best satisfied with the service are invariably those which have the best "follow-up" systems.

"Some of the others complain about not getting enough information," he said, "but the man who is making use of all that comes to him and is following it up properly, never has any kick. He is too busy working on his prospects to worry about the jobs that are slow in coming out and which, as a consequence, he might feel had escaped the reporters employed by the 'tip' service."

Working the Local Editor

Some time ago, the manufacturer of a well known paving-brick heard of a street-paving project in a city that was not so far away from his plant as to make it impossible for him to ship brick in competition with other paving-brick manufacturers. He heard that the kind of paving had not been determined and he knew that macadam, cement, wood-block and asphalt would all be right on the job. He had reason to believe that some salesmen for other brickmakers would be there, too, but for some reason or other he felt that, if he were going to have the least little chance of getting his material adopted, it might be well to brush his hat and get on the train.

First—he wrote a letter to the clerk of the city council, making an appointment for a hearing. He went before the council and made a talk in favor of brick paving—not only his own brick, but every well burned paving-brick—that made an impression. Not content with that, he called on the editors of the local papers, and told them what he really believed about brick paving—what he knew of its economy, and how well satisfied other towns were with the brick pavements they had paid. This is what one of the local papers had to say about it:

"Mr. Blank, representing the Blank Paving Brick Company, was here this week for the purpose of investigating the permanent street proposition. He says that brick streets here will cost $2 a square yard. The property owners will have ten years to pay for them and the annual expense would be no more than what is now paid out, each year, for oiling. Brick streets can be washed off and kept sanitary. Oil serves as a receptacle for all the filth which touches the streets. All the filth which reaches the street during the life of the oil is held there. If for no other reason, brick or some other kind of permanent pavement should be put down, for the benefit of the health of this community. It is apparent that brick is the most substantial paving for streets in the business section of any town."

This editorial matter was run as the personal opinion of the editor. It did its part in determining public sentiment and it has since been decided to pave with brick. The man who went before the council has made friends for brick and friends for himself in that community. When the contracts are let, there is every reason to believe that he will have a good chance of supplying his block for the greater part of the work.

On the Preparation of Booklets

The booklets you issue, and the letters you write, are often the only means the prospective customer has of judging your product and the concern that is behind it.

Just as a salesman should have a thoro and complete knowledge of the goods he is selling and enough enthusiasm regarding them to be able to convey his own good impressions to the would-be buyer, so the booklet should show that the man who wrote it understood what he was talking about, and believed what he wrote.

In selecting a salesman to cover a certain territory or a certain class of buyers, due precautions are taken to insure a favorable first impression. If he is selling a farming community and presenting drain-tile or hollow building block, he will be a man whose "address" is altogether different from that which you would select, if he were a man who was selling fine porcelains to the buyers for large department stores.

The same line of reasoning must be applied when designing booklets. The covers and the general "style" of the booklets take the place of the salesman's personal attributes. The line of argument that is printed on the pages must be similar to the line of argument that the salesman gives, after he has handed in his card and "passed the time of day" with the prospect.

The average intelligence of the people to whom you are appealing has been improved during the past few years. The agricultural college and the high school, coupled with the low cost of many of the better magazines, has made people look for a better class of trade literature than formerly. The growth of art in advertising has accustomed them to attractiveness as the first requisite of interest.

Good covers, good paper, good illustrations (if any), good printing, logical arguments, less about the firm and more about the uses of the material—stress laid upon the profit or the saving to be made by the use of that material—these are the things that make the "silent salesman" bring home the orders.

Say enough in your booklet to make the reader *think*. Say it in such a way that he will want to read it again—and so save the booklet from the paper basket or rubbish heap—the graves that await badly prepared booklets.

A Novel Way of Displaying Face Brick

The Hocking Valley Products Company, which makes the famous "rug" brick, has, in its office in Columbus, Ohio, a most unique and effective way of showing face-brick. As the visitor enters the large and well lighted exhibit room he is confronted by an immense panel—fourteen feet long by seven or eight feet high, flanked by great square panels, possibly eight by eight feet. Along the top of these panels, and acting as a frieze, is a strip running the entire length of the room, and measuring about two feet six inches in height. Thus four panels of varying sizes occupy a space that approximates thirty feet in length by twelve feet in height.

At one end of the room is a narrow shelf about ten or twelve feet long and two feet deep. This shelf is built about four feet from the floor. From its outer edge to the floor are a series of narrow doors, which, being opened, disclose the ends of ten panels of face-brick, all on heavy rollers. These panels are large enough to accommodate fifty-four face-brick—nine courses high by six courses wide. This makes the brick surface about 24 x 52 in., and the somewhat massive frame considerably increases these sizes. Each panel is laid up on both sides, and in this way there are twenty panels of face-brick, all laid in mortar, and occupying a space that is between ten and twelve feet long, and four feet high.

This method of displaying face-brick has some excellent points. One is that the customer sees only the panels that the salesman wants to show him; another is that the customer can be given a chair and situated at some place in the show-room where the light is most favorable. Then the panels may be wheeled out, one by one, and turned so that the light will fall upon them in a way that will be sure to bring out their best points.

Provision must be made, in the room adjoining the showroom, so that the length of these movable panels will be taken care of. Remember, they are something like five feet long, and the shelf under which they are pushed, lengthwise, is but two feet in depth. In the next room, however, a similar shelf can be built—some sort of flat top desk, without drawers.

Doing Educational Work

There are so many competitive materials which brick must meet that the man who does the selling is compelled to do a lot of educational work. In this connection it should be remembered that personal work is usually the most effective. A well written letter is worth while—especially when it is prepared especially to appeal to the man to whom it is addressed; form letters, if cleverly composed and very carefully gone over to see that the life has not all been taken out of them by making them too general, are frequently—altho not always—read and answered.

But the man who can see his prospect face-to-face and argue his proposition freely, has a great advantage over the man who tries to do his selling from his desk. The advantage of personal contact should be used every time it is offered, if the prospects of profit on the sale are sufficiently great to warrant the expenditure of the railroad fare.

The trouble with some salesmen (and this applies to sales managers as well) is that they *don't give the prospect the benefit of the doubt.* That is—they hypnotize themselves into believing that he can be "pulled across" by a letter or a booklet, more because they are averse to making the trip to see him than on account of the expense involved. Later, as often happens, the prospect is turned into a signed order by some competitor.

It nearly always turns out that he was "signed up" by some one who took the trouble to go and see him—perhaps two or three times. But the man who went after the business got the business—and that is the whole moral.

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Fuel and Heat Losses Between Mine and Crank-Shaft of Engine

The following table from "Factory" sets forth in unmistakable terms the appalling heat losses which occur in the transformation of a ton of coal from fuel at the mine to power at the crank-shaft of the engine.

It has been said that we are a wasteful people, but it is a revelation to even the most skeptical to learn that only three and one-half per cent of the available heat units in a ton of coal are actually converted into power at the average plant. Following the process from the point where the miner's pick dislodges the coal from its bed, to where the engineer is watching the throbbing of the engine, the loss figures are as follows:

Stage	Character or Cause of Loss	(1) Preventable	(2) Non-preventable	Total (1) Plus (2)	Net B. T. U.	Per Cent
	Theoretical Heat Units B. T. U. in Original Ton of Coal				29,000,000	100
Mine to Furnace	Handling and Weathering	290,000	290,000	580,000		
Furnace	Unconsumed Coal in Ash	1,136,800	284,200	1,421,000		
	Radiation from Furnace	852,600	284,200	1,136,800		
	Chimney Loss Due to CO	204,908				
	Chimney Loss to Maintain Draft		3,410,400	3,615,308		
	Air Leakage Due to Bad Settings	2,842,000				
	Air Leakage Due to Poor Firing	2,842,000		5,684,000		
	Moisture in Coal and in Air		426,300	426,300		
	Total Furnace Losses	8,168,308	4,695,100	12,863,408		
				Delivered to Boiler	16,136,595	55.7
Boiler	Unabsorbable Heat in Flue Gases		1,280,907	1,280,907		
	Soot on Outside Boiler Tubes	1,126,561		1,126,561		
	Scale on Inside Boiler Tubes	1,452,293		1,452,293		
	Short Circuiting of Gases	322,732		322.732		
	Improper Draft Regulation	1.116.800		1.116.800		
	Total Boiler Losses	4,018,386	1,280,907	5,299,293		
				Converted into Steam	10,837,302	37.4
Pipes	Leakage of Water and Steam	216,685		216,685		
	Friction and Radiation	866.742	216,685	1,083,427		
	Total Pipe Losses	1,083.427	216,685	1,300,112		
				Delivered to Engine	9,537,190	32.9
Engine	Exhaust		7,627,331	7,627,331		
	Condensation and Radiation	715,063		715,063		
	Friction in Engine	59,588	119.177	178,765		
	Total Engine Losses	774,651	7.746.508	8,521,159		
				Converted into Power	1,014,030	3.5
Total	Grand Total Losses	14,046,774	13,939,200	27,985,974		
	Per Cent	48.5%	48.0%	96.5%		

The Power Plant Needs Attention

In these days of keen competition, every live clay plant superintendent is looking for opportunities to reduce the cost of production. Very few superintendents, however, pay much attention to the power plant, leaving it to the engineer or the electrician.

Even a casual inspection of the above table will convince the most consistent neglecter of the power plant that this department offers wonderful opportunities for a substantial saving in costs. Just a little over half of the total heat losses in coal for power production are preventable. Of these useless losses, this table shows that the furnace wastes fifty-eight per cent, the boiler is responsible for twenty-eight per cent, the piping dissipates nearly eight per cent and the engine is charged with five per cent. Bad boiler settings and poor firing are equally responsible for air leakage, which is the largest single cause of wasted coal.

Under the head of preventable boiler losses more than one-half is chargeable to dirty boilers, applying to both the inside of the boiler and to the flues. It has been shown that a scale one-eighth of an inch in thickness will cause a loss of eighteen per cent in heating power. In other words, eighteen per cent more coal is required to produce the same amount of steam under these conditions as would have been used had the boiler been clean.

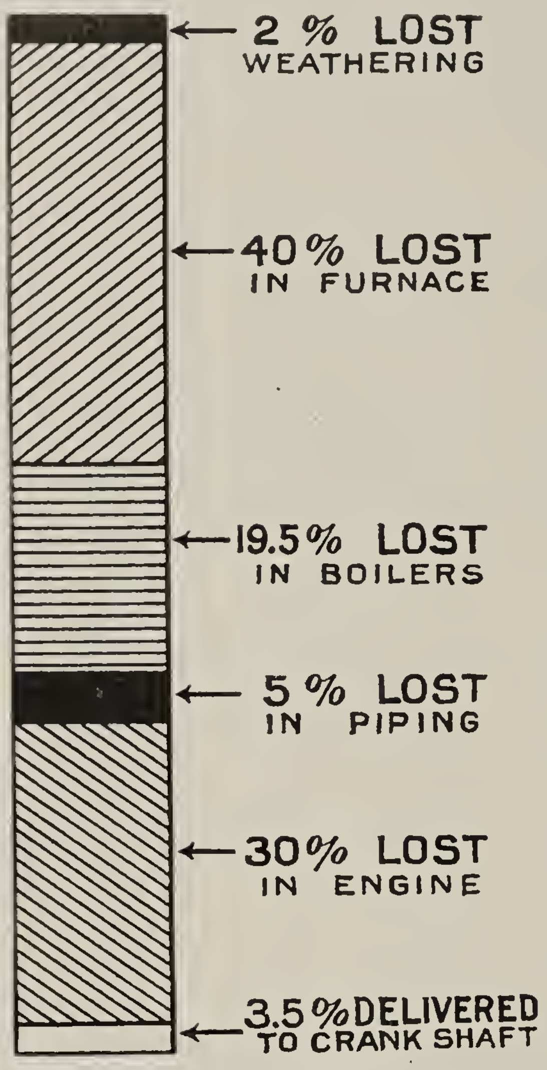


Chart Showing Distribution of Heat Losses in Coal from Mine to Engine

"Short Circuiting of Gases" is a matter of design and proper placing of baffles, while "Improper Draft Regulation" is up to the fireman.

The possibilities for saving in the operation of the furnace are greatest because the losses are greatest. "Radiation from the Furance" and "Air Leakage Due to Bad Settings" are matters of design and construction. The other three items listed as preventable losses, are all matters of operation.

Watch the Bearing Temperatures

It is just as important to maintain safe bearing temperatures as it is to furnish an uninterrupted supply of steam to an engine, therefore it is advisable to take temperature readings frequently and periodically. On high-speed machines it has been suggested that readings to be taken every half hour and never farther apart than every hour. To minimize the work of reading temperatures, and to furnish information which may be required in tracing causes of overheating, says the "Electrical World," temperatures might be taken at the following places: At each main bearing or in the oil return from each bearing; at the oil entrance to the oil coolers; at the oil outlets from the cooler; at the cooling-water entrance to the cooler, and at the cooling-water outlet.

Under normal conditions the temperatures of oil leaving each bearing should not exceed 130 deg. Fahr. If it does and the temperature of the cooling-oil outlet is fairly low, there may be steam escaping at the bearing, the oil may have broken down or may not be circulating fast enough. If the temperature of the oil delivered to the bearings has risen considerably, it may have been caused by too slow a flow of water to the cooler, by the oil depositing impurities on the cooler tubes, or by the water causing the formation of scale which hinders the transfer of heat.

Too slow water circulation will be indicated by an unusually large difference of temperature between the water inlet and the water outlet. Poor heat transfer is indicated by the oil outlet temperature being high, the difference between water inlet and outlet temperatures being smaller than usual. By making a record of temperatures under different conditions when the machine is operating properly and the cooler is known to be clean, and referring to it when readings seem to be at variance, the cause can generally be determined with accuracy.

"Cleanliness is Next to——"

A new washroom is about completed at the Streator (Ill.) Clay Manufacturing Company's plant. Into what was heretofore waste space have been placed twenty basins and two showers with hot and cold water. One hundred lockers of a small, yet very convenient size, have been installed, and the use of these makes it possible for a man to come to and go from the plant in other than working clothes and working dirt. No charge is made for the use of the room or baths or lockers, excepting that in order to obtain a locker key a deposit of twenty-five cents is made at the plant office; this is returned to the employe when the key is surrendered.

A waterproof floor and an elaborate electric lighting system adds to the attractiveness of the room and its installation is the subject of enthusiastic comment on the part of the great majority of the men.

As this plant mines its clay and its coal there are a number of employes that have reason to use the bathing facilities afforded by the new washroom.

Some Belt Safety Notes

"There are about fifty miles of belting in the Ford factory," reads a recent issue of the Ford Motor Company's weekly safety and health bulletin. "Several men have been hurt on belting because they were careless. You may be next—be careful.

"Never take hold of a moving belt to stop a machine, or shift a belt. Where no mechanical belt shifter is provided, slow the machine and use a smooth stick, at least four feet long.

"Belts should always be looked after by men prepared for such work. If a belt comes off, notify the foreman.

"Never pass through moving belts or try to step over them.

"A belt should never be repaired while any part of the machine to which it is connected is in motion.

"If a belt comes off do not touch it until the machinery has been stopped.

"Speaking about belts, do *you* know what motor supplies the power for your machine? It would be well to find out.

"Do *you* know which plug to pull to stop the machine, in case of emergency? If not, find out soon."

More Power at Less Cost

Scale an eighth of an inch thick in boiler tubes has been known to cause a waste of fuel value equal to three pounds of coal in ten. Soot on the outside of the tubes is a greater foe of economy, being rated many times more resistant to the passage of heat than the steel tubes.

Improper firing, broken-down baffling, leaky valves and fittings and poorly wrapped steam pipes are some of the other causes for the preventable loss which, ordinarily, in the average plant amounts to 13,276,200 B. t. u.'s. or nearly 46 per cent of the 29,000,000 B. t. u.'s in the original ton of coal. Engine losses bring down the number of heat units actually converted into useful mechanical energy to a million and a half B. t. u., which is only about 5 per cent of the quantity started with and less than 14 per cent of the 10,837,200 B. t. u. converted into steam.

When it is realized that fuel constitutes approximately one-half of the total power cost, it is evident that the practical elimination of preventable losses means a large financial saving.—"Factory."

Clayworking Problems

More than one hundred questions, sent to "Brick and Clay Record's" Department of Questions and Answers, and answered by America's foremost experts in the various fields of clayworking, have been collected into a small, cloth-bound book, containing nearly two hundred pages. Readers who have found interesting and valuable information in the Q. & A. pages of this magazine will be glad to know that this data has been put into such shape as to allow its being published in book form, with a handy index and some illustrations.

It will be sent on receipt of $1.50 by "Brick and Clay Record's" book department.

Proper Treatment for Electric Lights

One of the places where some superintendents of clayworking plants show a tendency to be "slack" is in the care given electric light bulbs. The idea of installing an electric light is to provide a substitute for daylight. It fails in that purpose when it is so covered with dust and grime as to almost require another light to find it.

The fact that it is consuming current without giving full value is not the only thing; it adds to the general untidiness of the place, and helps to give an impression that things are not "looked after" as well as they might be.

Another point is that nearly every light around the plant could be made to do better work if it were shaded. In nearly every case, the light rays are wanted in a certain place. If they are shut off by a shade, so that the light would shine only where it was wanted, better results would ensue.

There has been a great deal said about the "hypnotic" effect of an unshaded light. The fact is that it sets up an eye strain which makes men who are compelled to look toward it involuntarily close their eyes every once in a while. This adds to the element of danger that is always present around heavy machinery, and may have some effect upon other forms of carelessness which, at times, result in spoiled ware.

Appoint a man to go over the electric light bulbs every day, and give him clean water and clean cloths with which to work.

Clayworker Sends Mrs. Galt a Rolling Pin

With a card bearing the inscription "Adequate Preparedness," President I. F. Dains, of the Western Stoneware Company, Monmouth, Ill., recently sent to Mrs. Norman Galt, soon to become "First Lady of the Land," a neat, glazed, burned clay rolling pin.

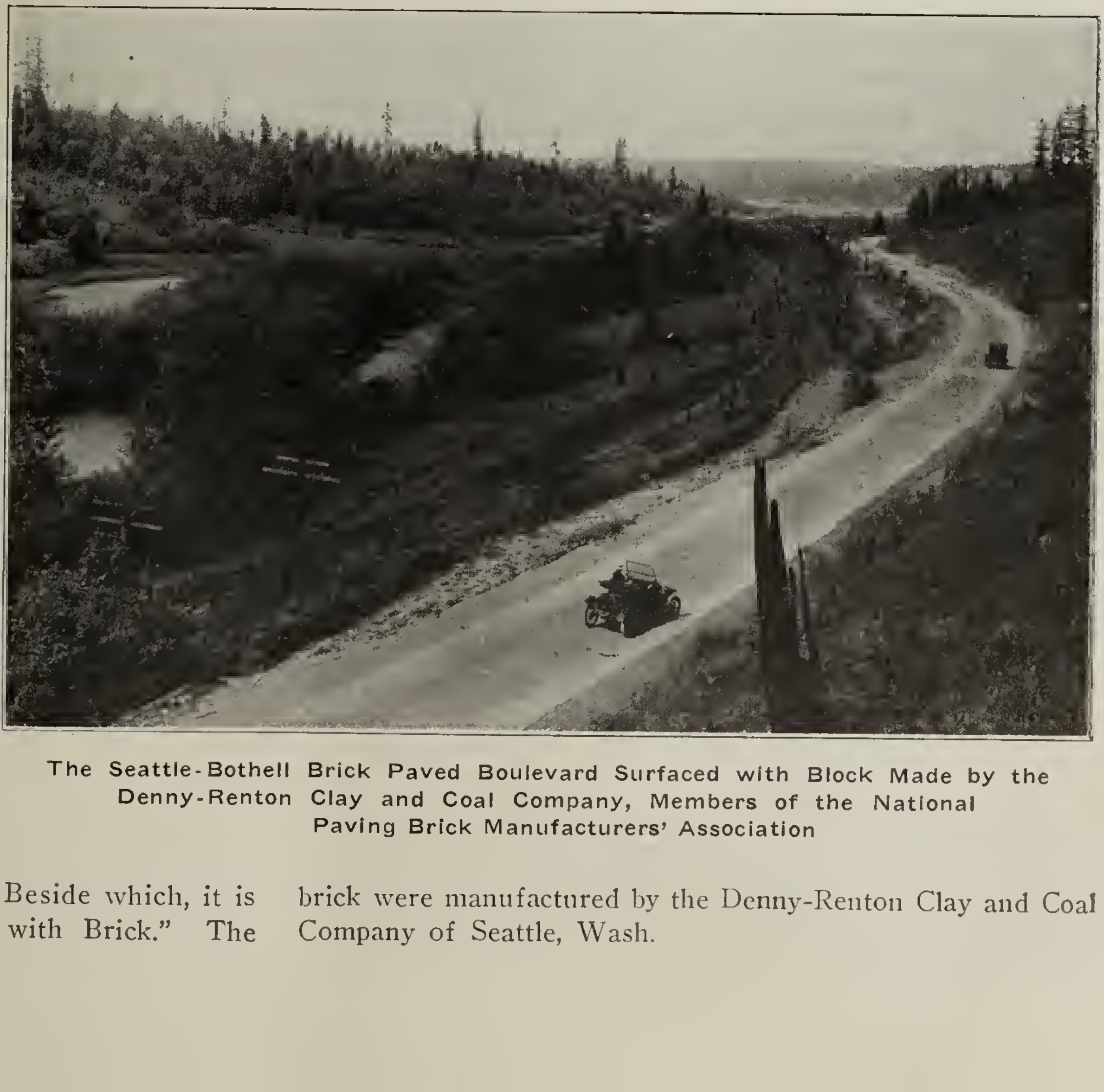
Since pins of this nature have long been recognized as woman's most effective weapon of defense (or shall we say offense) it was thought best at the Western plant to equip the President's fiancee sufficiently in advance so as to preclude any idea of her being in the same state of unpreparedness as is her country at the present time.

The rolling pin is one of the Western Stoneware Company's numerous products, made from a hard burned stoneware body and smoothly glazed, making it very easily cleaned.

In view of the President's recently announced plans for a larger defense program, he will, no doubt, heartily concur with the sentiment expressed on the card which accompanied the rolling pin.

Paving Brick in the Far West

"HAVE YOU been over the brick boulevard to Bothel?" That is the first question popped to incoming automobile tourists at Seattle. Back of the query is a lot of pride in Seattle's brick-paved roadway leading all the way to the little town of Bothel near Lake Washington. And Seattle has a right to be proud of this fine specimen of good roads work. Its surface is curved gently, just enough to help the water and oil to run off it freely. It is twenty feet wide, giving ample room for cars to pass one another without danger. Curves are numerous, but sharp turns have been avoided. From the business center of Seattle to the town of Bothel, the distance is close to fifteen miles. The ride is one replete in scenic grandeur. It winds about the shores of Lake Washington, one of the largest fresh water bodies in the northwest. It passes through dense forests of fir and cedar, and fine country homes are scattered at intervals along the route. Beside which, it is dustless and wear-proof, being "Paved with Brick." The brick were manufactured by the Denny-Renton Clay and Coal Company of Seattle, Wash.



The Seattle-Bothell Brick Paved Boulevard Surfaced with Block Made by the Denny-Renton Clay and Coal Company, Members of the National Paving Brick Manufacturers' Association

Machinery and Equipment

In This Department We give Descriptions of Such Machinery and Accessories as Our Advertisers Have to Offer, or Make Such Announcements as are of Interest to Our Readers

THERE isn't a brickmaker anywhere who does not appreciate the necessity of reducing his manufacturing costs to a minimum, providing, of course, there is no reduction in the quality of the product. It is also just as important to reduce the cost of handling brick, and hundreds of manufacturers in all parts of the country have found the Mathews Gravity Brick Conveyor the most efficient method of producing results in this connection. It doesn't make any difference whether the plant is large or small, the Mathews System is always a saving, and it has been demonstrated wherever it has been tried that one-half of the wheeling gang can operate the Mathews Conveyor and the other half be entirely eliminated. This means a saving not only in labor cost but also in the cost of wheelbarrows.

Mathews Gravity Conveyor at Plant of the Bessemer (Pa.) Limestone Company

This system is not an experiment by any means, but has been used successfully for a great many years by a large number of the most prominent brickmakers in the country.

We don't know of any general superintendent of a brickmaking plant who is better known than F. R. Kanengeiser, of the Bessemer Limestone Company, of Bessemer, Pa. In a letter which he recently wrote relative to the Mathews Gravity Carrier, he had this to say:

"We have used gravity carriers quite extensively for over nine years, in loading from kiln to car we use nothing else. In opening kilns it saves us at least one-half day in the drawing of each kiln, and as you know, the plant inspection of paving block is very rigid and severe. We find these gravity carriers the ideal method of inspecting block. Every block must pass under the eyes of the inspector, thus permitting the minimum of paving block to enter the car which would be rejected on the job. These carriers also admit of very fast time being made in unloading kilns, due to the fact that a man is always placing the block on same and need never stop to handle a wheelbarrow, as is the usual case."

This system is being very successfully used for brick, conduit, tiling and other forms of clay products which are made to travel by their own weight any desired distance on a four per cent grade. They will travel around single or reversed curves, the same as on a straight conveyor, without danger of falling off.

Inasmuch as the operation is by natural gravity, there is not one cent of cost for operation.

These conveyors are made of solid steel in four-foot and eight-foot lengths coupled together. The brick travel over cold drawn seamless steel rollers 2¼ in. in diameter, in widths varying from 10 in. to 16 in. These rollers are ball-bearing and flanged at each end to prevent brick from falling off.

This conveyor is so made that it can be very quickly moved from one place to another and the brick can be transferred by gravity from the kilns to cars or to storage yards as may be desired.

Any manufacturer of brick or clay products who has not investigated the Mathews Carrier is undoubtedly spending too much for the handling of his product.

Full information with reference to this system will be cheerfully sent on inquiry of Mathews Gravity Carrier Company, Ellwood City, Pa.

Business Good in Dixie

J. C. Steele & Sons, of Statesville, N. C., make the following report as to conditions with them:

"The outlook now is we think excellent, we having many inquiries from all over this country, and some good orders from Mexico, and other southern countries.

"During the past year while business was not good, as everybody knows, we have busied ourselves in making improvements in plant and designing improved equipment, so that now we are in better shape than ever before to take the best of care of orders, and furnish equipment that is the last word in efficiency and satisfactory operation."

Several of the members of this firm are planning to attend the convention of the American Face Brick Association, to be held at Old Point Comfort in December, and it is contemplated that some of the association members will accompany them for a trip thru North Carolina to Statesville and probably other interesting points.

Practical Efficiency Engineers

Men succeed today by intensive specialization on just one definite line of endeavor, and in turn the progressive modern industry succeeds because it specializes in its manufacturing output.

The successful specializing manufacturer needs and employs the specializing engineer, just as the individual needs and employs the medical specialist to advise, to cure and build up run down body tissue.

Trained engineers who are skilled in the preparation, manufacture, drying and burning of all kinds of clays are of inestimable value to the plant having trouble.

They are able to judge conditions with a long focus, their minds are unprejudiced and fresh, they see the faults that have been gradually woven into the process of manufacture—

faults that even the best of superintendents do not see. They are often able to suggest remedial measures both simple and inexpensive, and can study to devise ways and methods to increase first quality output and reduce costs.

The work of H. & B. Copping, of Kankakee, Ill., is closely defined by the above. Working shoulder to shoulder in overalls and jumpers, each is a specialist, one in the drying and burning, the other along mechanical lines, the dies, the power equipment and machines.

Are there any leaks in your plant? Is your drying and burning satisfactory? Could the Coppings fix it? They have no overhead expense; nothing to sell but personal service; the fee is moderate.

It is worth thinking about—do it.

Increased Business Demands Larger Quarters

The Ceramic Supply & Construction Company have been compelled to move their business to more commodious quarters, and are now at 167-171 West State Street, Columbus. Here they have plenty of room and light, and offices in connection with their shop.

This move has been occasioned by reason of the increase in their business and also on account of arrangements that have been made to develop a more extended business in brickmakers' supplies, the enlarging of their present line of clay feeders, increase in their line of clay screens, supplies for kilns and dryers, the development of a new line of temperature machinery apparatus for both kiln and dryer and the enlarging of their present line of testing and controlling apparatus.

This firm has had a very rapid growth and much of it is due to the energetic work of H. C. Arnold, the secretary, as well as the able counsel and co-operation of W. D. Richardson, the president.

Cyclone Grates in Demand

Quite a large number of brick plants in various sections of the country have installed the Cyclone grates during recent years, and this product has proven to be highly efficient for use in brick plants.

The company makes both shaking and dumping grates, suitable for use under steam boilers as well as in brick kilns.

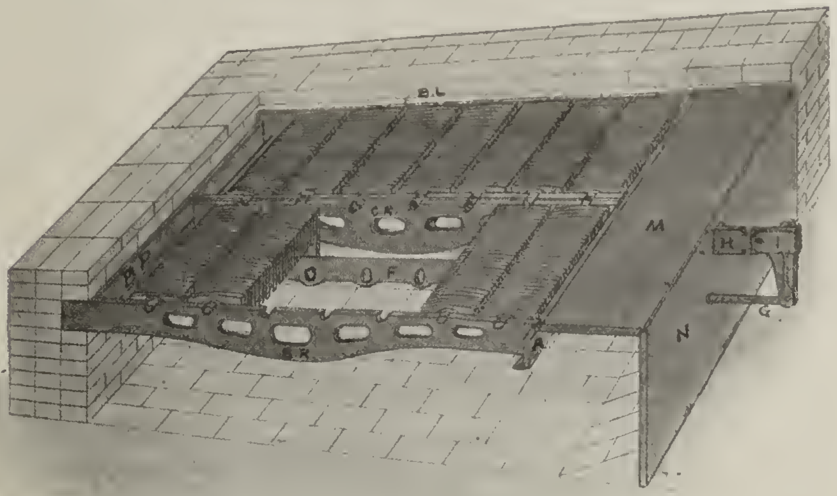
Some particular points of superiority about the Cyclone grate are that its construction admits 68 per cent of the available air, nor can it waste fuel when shaken, as the openings between the bars are no greater when shaken than when locked bevel. It will burn any kind of fuel inasmuch as it is furnished with whatever bar is best suited to the fuel which is cheapest or most desirable in any locality.

Bartlett & Snow Double Side-Feed Pug Mill.

There are no points or fingers to burn off, and the bars are so brazed and trussed that warping is a practical impossibility. These are only a few of the points of superiority.

In a letter recently written by H. B. Loveland, manager, Ellicott Brick Company, Jewettville, N. Y., he had this to say about Cyclone grates:

"We have been using them for some eight or nine years, first under the boiler of our old outfit and second under our new equipment, installed some six years ago. They have given us the utmost satisfaction and we are only too glad to say the very best word for them."



Cyclone Grate for Clayworking Plants.

A letter addressed to the Cyclone Grate-Bar Company, Buffalo, N. Y., will bring a catalog, giving full information relative to these grates; also the names of brickmakers who are using the Cyclone grate will be cheerfully furnished to anyone asking for them.

An Ideal Pug Mill

The brick-plant manager who wishes to obtain the highest efficiency in all of the departments of his plant is confronted with many problems, especially in the brick-machine room.

A large number of plants today operate more than one brick-machine and at times one machine turns out better brick than another. This usually causes more or less worry on the part of the manager who in turn will call the attention of the brick-machine operator to this fact. The operator will usually lay the blame on the clay temperer, then when the clay temperer is consulted he usually says that he cannot help it because he receives a poor car of clay occasionally. Wherefore the manager has finished his inquest without obtaining a great deal of satisfaction, altho his requests may be sufficient to call the men's attention to some point that may, in turn, produce better results for the time being, but the same trouble is bound to occur repeatedly.

In many brick plants the conditions are such that an extra large pug-mill could be installed at a reasonable cost, which would pug and properly prepare the clay for two brick machines and prevent all the trouble and argument as above stated. In some cases the amount of labor saved in hoisting and tempering the clay with this type of installation will pay for same in a short time.

The accompanying illustration shows a double-side feed pug-mill with adjustable gates, having a capacity of 16,000 brick per hour, manufactured by the C. O. Bartlett & Snow Company, of Cleveland, Ohio. Valuable information in regard to pug-mill installations can be obtained by addressing the above company.

More Than a Hundred Questions

Relating to Clay Preparations, Pressing, Setting and Burning are *answered* in "Clayworking Problems"—a book that sells for $1.50.

The DEWEY 5-Ton Locomotive

It never balks on heavy loads or grades
Why not let the Dewey do *your* work?

DEWEY BROS., Inc., Goldsboro, N. C.

G & S PRECIPITATED CARBONATE OF BARYTES

We are now able to ship promptly from our new factory in New Jersey. The war no longer troubles us.

WRITE FOR CIRCULARS AND PRICES.

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ALL STYLES—ALL SIZES

H. W. GERLOCK, Huntingdon, Penna.

Watchman's Clocks

Approved Systems from $10.00 up

NEWMAN CLOCK COMPANY

181 Fulton St., New York 564 W. Washington Blvd., Chicago

Excessive Freight Rates

The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.

Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.

These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.

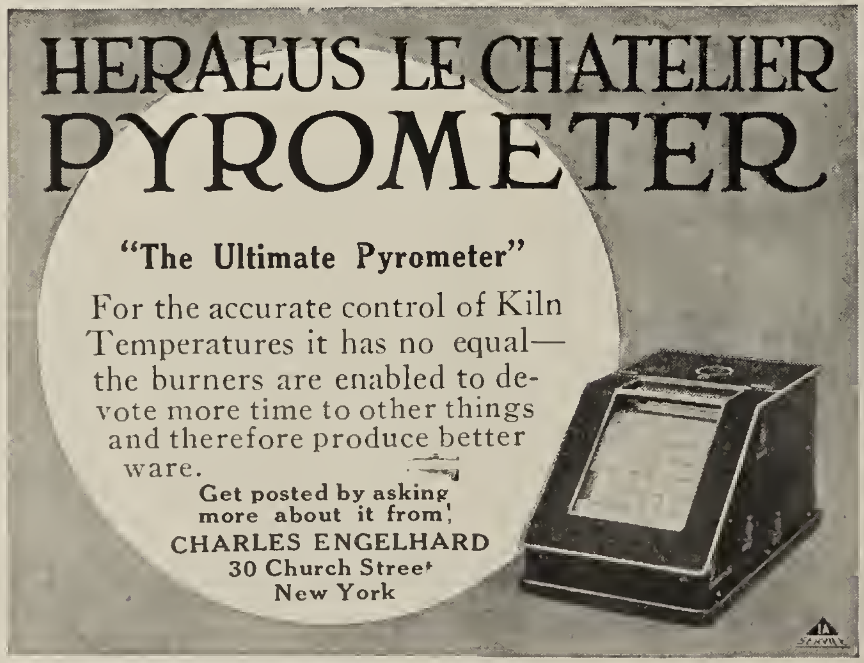
IRWIN W. PREETORIUS, Freight Traffic Counselor

2101 Transportation Building, Chicago, U. S. A.

BRICKMAKERS' HEADQUARTERS FOR GREASES AND OILS

A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.

G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A.



HERAEUS LE CHATELIER PYROMETER

"The Ultimate Pyrometer"

For the accurate control of Kiln Temperatures it has no equal—the burners are enabled to devote more time to other things and therefore produce better ware.

Get posted by asking more about it from

CHARLES ENGELHARD
30 Church Street
New York

The Semi-Monthly Trade Review

WHILE DETAILED FIGURES covering October building for the country as a whole are not yet available, advance reports indicate that the broadening scale of building operations so noticeable in September, which showed a gain of thirty-nine per cent over the same period last year, was fully maintained during October.

Brief reports at hand from a few scattered cities are very encouraging, and if these are to be taken as harbingers of what will be revealed when October's building figures have been totaled, it looks very much as tho the tenth month's showing will be more than satisfactory. Building operations in Cleveland for ten months of the present year exceed the total volume for the twelve months of last year, the aggregate valuation being $27,000,000, October being far ahead of the same month in 1914. In Kansas City, as compared with the corresponding period last year, the month of October just passed shows a gain of over one hundred and eighty per cent in building permits issued. The Richmond (Va.) City Building Inspector's report for October shows a substantial gain over October, 1914, both in amount of new work authorized and in alterations. Permits for business structures alone in Chicago during October totaled eighty-five in number with a valuation of $2,397,100, as compared with thirty-eight and $589,642, respectively, in October, 1914, a gain of over three hundred per cent.

BUSINESS SHOWS FURTHER GAIN

Again a distinct improvement in business conditions is recorded during the past two weeks, which is shared by all branches of industry. Many commodities seem to be trying to outdo each other in spectacular showings, both in earnings and in price advances, with steel and iron taking most of the limelight. During October, for the first time in the history of the country, the output of pig iron reached 3,000,000 tons, while on October 31, the United States Steel Corporation announced that it had a total of 6,165,452 tons of unfilled orders on its books. Price advances have had no effect in curtailing the demand, which is now heavier than at any other time during the present remarkable movement. While war orders have no doubt done much to swell the above totals, it is not to be taken that they form the bulk of the business. A very significant statement was recently given out by the American Car and Foundry Company which stated that it was operating its nine plants at full capacity, ninety per cent of the orders being domestic business. The effect of the steel boom on the demand for firebrick has been very marked. Everywhere refractory manu-

SAY I SAW IT IN BRICK AND CLAY RECORD

facturers are busy filling large orders for shapes that are used in the steel and iron trades, a disinct contrast to conditions in that industry a year ago, when most of the furnaces were inactive and fire-brick makers despondent.

RAILROADS ENJOYING PROSPEROUS ERA

The railroads, which always cut a big figure in the nation's prosperity, are showing very encouraging reports. Upon his return from an inspection of the Baltimore and Ohio Railroad, A. W. Thompson, operating vice-president, remarked that, while the road is handling the largest business in its history, the high tide of commercial activity is not in sight, indications pointing to a continued improvement in business.

President Markham of the Illinois Central Railroad who has just returned from an extensive inspection trip of his road, says:

"The South is smiling from the Ohio River to the Gulf. Without any business as a direct result of the war, our traffic is increasing in all communities. Diversified farming in the South is bringing diversified traffic, which is moving in all directions, making much more stable business than when cotton was the only crop, creating traffic one way."

R. S. Lovett, chairman of the Union Pacific's board of directors, in a recent interview in Denver said:

"The railroad business is looking up in the West because of its grand crops and in the East because of great industrial activity. I believe this will continue for a long time. Conditions generally are improving outside of these causes and should continue to improve indefinitely."

The above statements are quoted, not because the brickmaker may be a stockholder in any one of these carriers, but because they reflect the condition of business in all parts of the country, which, when good, has a decided influence on building operations everywhere.

HUDSON RIVER BRICK MAKERS SEE BIG YEAR AHEAD

Hudson River brick manufacturers, after finishing the smallest season in years, have expressed themselves as satisfied with the outlook for the future. In fact, one who is in a position to know just what is happening on the New York market and who keeps closely in touch with developments at that point, recently stated:

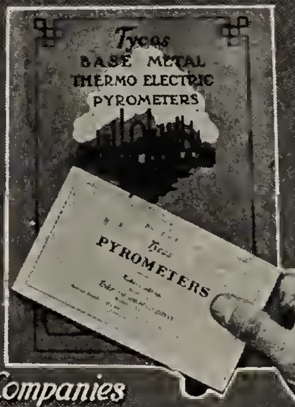
"The prospects are excellent for a very prosperous condition in the brick manufacturing trade next year. Prices for brick in this market promise to reach abnormal levels during the coming winter, first, because dealers are forced to load in cement, shutting out much stacking of brick, and second, because of the recent unprecedented rise in the price of cement, leaving a wider margin between that commodity and brick and removing the last barrier to profit-taking prices on all clay products. Brick supplies are barely ample in the Hudson and Raritan river valleys for a normal winter, and already plan filings show a tremendous gain and building money is easy. If the weather permits, construction work between now and March first will be entirely normal and prices may reach more than $7.25 a thousand. A good buying winter will encourage manufacturers to take up their long postponed overhauling of equipment for a big run next summer.

"This condition is true of all points in the East, especially Connecticut and thruout New England. Brickmakers are looking for some expansion and are keen for new equipment plans as they have not been in more than ten years."

Now that a full measure of recovery in the commer-

WHAT'S YOUR ADDRESS?
FITS YOUR LADLES —we want to know it, for your good—and ours—we want to send you some new information on babbitt—perhaps a trial order—for
Repairs and New Installations
within the next few months are going to require quantities of the very best babbitt.
That means NUGGET—15c per pound FITS YOUR LADLES
THE CLEVELAND ALLOYS CO.
CLEVELAND, OHIO

ORDER YOUR CUTTING WIRES FROM WEBB
They cut every kind and class of wet clay ware. Face, common and paving brick. Sewer pipe, tile conduit and fireproofing.
STRENGTH UNIFORMITY DURABILITY REG. U.S. PAT. OFF. W W
They screen clay, shales and grog. Webb Wires are small and tough, cut clean and leave no ragged edges. They don't break.
THE WEBB WIRE WORKS, New Brunswick, N. J.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Practical — Dependable — Guaranteed
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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories
Offices: Steubenville, Ohio
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BUCKEYE MEANS BEST
BEST MEANS BUCKEYE
All Sections from 12 lb. to 40 lb. per yard
Write or wire us when in need
No order too large to handle promptly or too small to receive immediate attention

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Scores of Brick Plants are Using the

HARDINGE WATCHMAN'S CLOCK

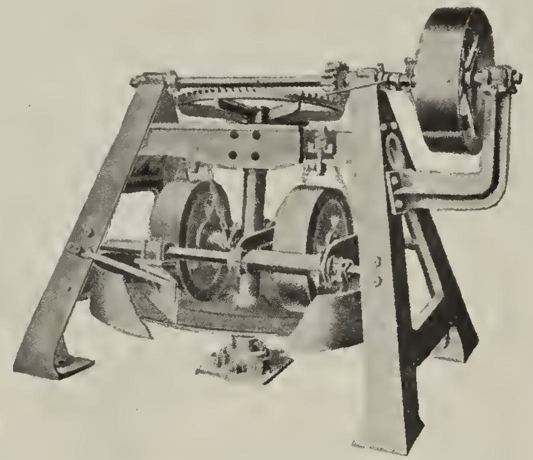
because it is an absolute protection against human carelessness or inefficiency. The honest watchman is glad to use it; the dishonest one is immediately found out.

By the timely discovery of a fire—by catching the thief before he gets away—the price of this system is saved many times over.

Ask us for the names of brick plants using this system.

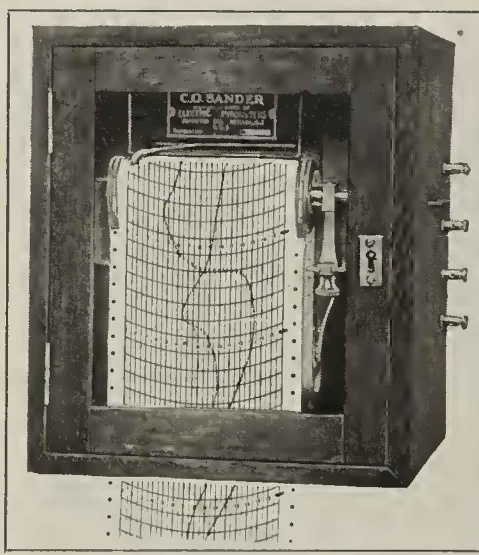
HARDINGE BROS., Inc.
1760 Berteau Avenue
CHICAGO

THE EAGLE DRY PAN



Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA



Guesswork—Knowledge

Guesswork means poorly burned ware, with a corresponding big waste.

Knowledge of your kiln temperature (gained thru the use of the pyrometer) means absolute heat control, uniformity in burning—waste cut to a minimum.

Let us help you make the wise choice.

The Sander Instrument Co.
136 19th Ave., Irvington, N. J.

Do you carry extra chains?

Have you insured your shovel output by carrying in stock extra lengths of Woodhouse Specials—all ready for the time when you will need them—Quick ? You should—you know why!

Woodhouse Chain Works
Trenton, N. J.

cial world is being approached with a constructive movement, the rapidity of which has been seldom equalled in the history of this country, the question is being asked on every hand: "What started it?"

While the situation abroad furnished the motive power that started the wheels of progress, it is the exceptional strength of the nation's economic structure, as represented in part by the bountiful crops and the sound banking position, that has made the advance to new goals possible. In the light of these facts it can readily be seen that this country's industrial welfare has reached a point where it is not entirely dependent upon the business growing out of a world struggle, much as this may have helped. In fact, speaking from a commercial standpoint, rather is peace to be desired not only for humanitarian reasons, but for the greater opportunities it will present to our merchants and manufacturers. That this statement has some authority back of it may be gained from the following remarks recently made by Herman Waldeck, vice-president of the Continental and Commercial National Bank of Chicago, upon his return from a trip to New York. Speaking of "after the war" views as he noted them, Mr. Waldeck said:

UNPARALLELED COMMERCIAL ACTIVITY AFTER WAR

"Sentiment toward peace is two-sided. Speculative interests shiver when foreign cables suggest peace, while substantial banking interests expect that the termination of the war will be followed by prolonged prosperity in this country.

"The great temporary activity in certain lines of industry brought about by war orders is recognized, but it is believed that after the war this will be succeeded by conditions of general and permanent improvement. The basis of this view is that once the now warring nations enter into a constructive period following peace, there will be a broad demand for our exportable surplus. Our steel, copper, grain and packing-house products, all will be required, and this will mean universal activity in all branches of the nation's business. Such a condition cannot exist without a diffusing of prosperity."

After the war, what? A greater prosperity than this country is now enjoying, which, when reduced to the last analysis so far as the brickmaker is concerned, will mean a new era of record plant runs, higher prices and a more stable demand, the beginning of which is only now being witnessed.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

PERSONAL

John C. McAvoy, secretary of the McAvoy Vitrified Brick Company, Philadelphia, Pa., is an euthusiastic golfer and as such has been active in several golf tournaments recently held by the various clubs in, or rather near, the Quaker city. Mr. McAvoy was in a five cornered tie for the first prize awarded by the Rotary Club for a tournament held on the course of the Aronomink Country Club. In the fall tournament of the Lu Lu Temple Country Club, Mr. McAvoy made

SAY I SAW IT IN BRICK AND CLAY RECORD

a most creditable showing, defeating Edward Styles. Mr. McAvoy was the victor by 3 up and 1 to play.

E. E. Nickson, manager of the National Fire Proofing Company, Philadelphia, Pa., reports business as being in a very healthy condition. Mr. Nickson states that a number of orders for hollow tile have been received recently, including the contract for supplying fire proofing materials to be used in the construction of the new Armory building at 32nd Street and Lancaster Avenue, Philadelphia, the amount involved in this transaction approximating $10,000. He is of the opinion that business will continue to be satisfactory for some time to come, and that local manufacturers will experience a prosperous season.

H. H. Tittsworth, president of the Clay Product Company, whose offices are in Chicago, left the plant at Brazil, Ind., during the early part of the present month for a motor trip through Virginia. Mr. Tittsworth will spend three weeks in the Old Dominion, traveling leisurely from point to point and enjoying the wonderful scenery among the green hills and peaceful valleys of that historic state.

P. A. B. Widener, a director of the Jarden Brick Company, Philadelphia, Pa., and widely known financier, died recently at his home in Elkins Park, due to advanced age. For several years past Mr. Widener had been gradually withdrawing from directorships with a number of industries in which he had formerly been active and, at the time of his death, only retained active interest in the affairs of the Jarden Brick Company and a few other local concerns.

Thomas Eadie of the Eadie Building Supply Company, who has sold brick in Kansas City for more than twenty-seven years, says the business has taken a wonderful spurt considering the fact that winter is approaching so nearly. According to Mr. Eadie there is a lot of new work opening up, which he regards as the best possible evidence of Southwestern prosperity. He believes that next year is going to be a great brick year in this section.

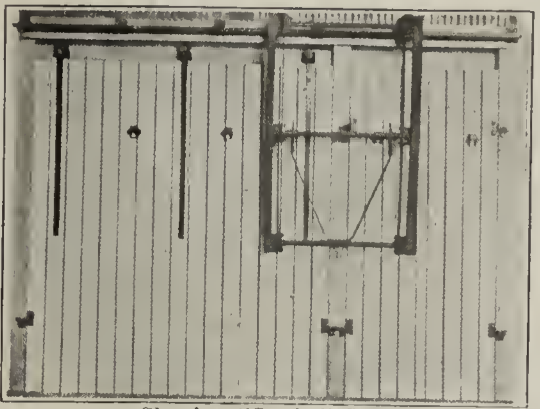
William Ammann, brick manufacturer of Decatur, Ill., is dismantling his plant at that point, the last wheel having turned about a month ago. The clay supply having given out, it became necessary to use clay that was shipped in, and the present location of the yard being too far away from the railroad, made this expensive. A new plant will be erected as soon as a desirable location can be found.

Eugene Corrigan, San Francisco selling agent for the Stockton (Cal.) Fire & Enamel Brick Co., reports that his company is adding another drier to its plant, the new drier having a capacity of 20,000 brick per day. This is mainly for use during the rainy season.

A new brick dealer in Hopkinsville, Ky., is R. S. Ambrose, who has opened a general builders' supply business on Eighth street. He will handle both a retail and a wholesale trade. Mr. Ambrose is well known in the trade, having had long experience.

W. Grant Dickey of the W. S. Dickey Clay Manufac-

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction. Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.

PYROMETERS

One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

The Brown Instrument Co.
Philadelphia, Pa.
New York Pittsburgh Chicago

Mr. Brickmaker:

We want to help you secure that order you are now working on. The samples you have picked out look fine, but have you made proper arrangements to insure their reaching destination in that same splendid condition?

You know last week you lost a big order because your samples did not show up well beside your competitors'.

Other brickmakers have found H & D Corrugated Boxes useful in this connection, and we urge that you give them a trial this time.

The Hinde & Dauch Paper Co., Sandusky, O.

PERFORATED METAL SCREENS
As required for
BRICK
MAKERS
USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.

New York Office
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Manufactured by
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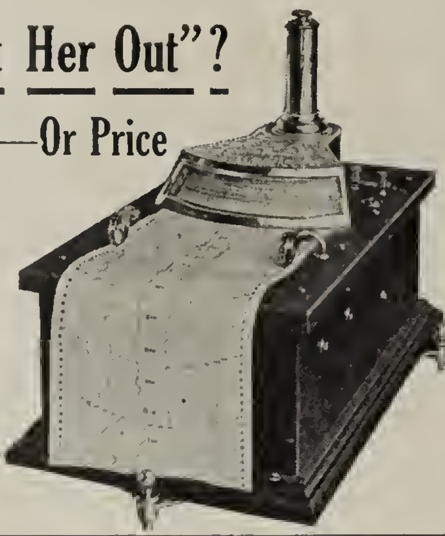
CARBONDALE, PA.

SAY I SAW IT IN BRICK AND CLAY RECORD



"When Do You Put Her Out"?

Guess At It—Time Limit—Or Price

Do you know positively when your kiln has reached and sustained for a sufficient length of time—a maturing temperature?

A Price Pyrometer furnishes absolute information.

The Price Electric Co.

12367 Euclid Ave.
Cleveland, Ohio

NOW IS THE TIME

to look over your railway supplies and be sure everything is in good shape. We have an immense stock of raw material and can ship promptly switches, crossings, frogs, switch stands, rail braces, tie plates, portable track, etc. Send us your next order.

Catalog C gives complete details.

Cincinnati Frog & Switch Co., CINCINNATI, OHIO

Send for This Booklet

Contains lots of good information for the man who wants to reduce his power and light cost, as well as the gas engine operator who is interested in getting the most efficient results from his equipment.

CONTENTS

Advantages of gas power.
Facts and Figures.
Bruce-Macbeth Engineering Service.
Producer Gas Plants.
How thousands of wasted horse power can be saved.
Meriam Steam Process.
Gas Engine Data. (A section for the operating engineer.)

The Bruce-Macbeth Engine Co
2134 Center St. N. W.
CLEVELAND

Davenport Locomotive Works,
Davenport, Iowa

turing Company, second son of Walter S. Dickey, president of the company, died in Colorado Tuesday morning, November 9, after a sickness of several weeks.

William Conway, president of the Conway Brick Works, Philadelphia, Pa., reports business as being very good and states that he expects to continue operations at the plant at present capacity until the first of the new year.

G. W. McNees, manager of the Kittanning (Pa.) Clay Manufacturing Company, was in Washington, D. C., for a few days last week in connection with some face-brick contracts that are due to mature in the near future.

Frank Pireaux, the oldest brick manufacturer in the northern part of Wisconsin, died recently at the age of eighty years. He was engaged in brickmaking for nearly thirty years.

T. T. Hines is installing machinery for a brick manufacturing plant at Douglas, Ariz.

CALIFORNIA

N. Clark and Son of San Francisco have secured contracts for vitrified sewer brick for municipal work at Stockton and at Visalia, Cal.

The California Building Materials Company and the California Paving Brick Company have opened offices in the Call Building on New Montgomery Street, San Francisco.

The Richmond (Cal.) Pressed Brick Company, has completed the laying of a spur track connecting its plant with the Santa Fe railroad. It is understood that a considerable addition to the plant works is being planned.

The Steiger Terra Cotta and Pottery Works of San Francisco has secured a contract for terra-cotta and partition tile for the new plant of the Pacific Coast Shredded Wheat Biscuit Company at Oakland, Cal.

The McNear Brick Agency of San Francisco is supplying 2,000,000 common-brick for the San Francisco Public Library, as well as 500,000 for the new factory building of the American Can Company.

The old plant of the Sacramento (Cal.) Sandstone & Brick Co. has been taken over by the Independent Brick Company, of which H. M. Bennett of San Francisco is president. The plant is located at the confluence of the Sacramento and American rivers.

A million and a half of common-brick and more than a quarter of a million of face-brick will be required for the construction of the new hospital of the University of California in San Francisco. It is expected that the contracts for the building will be let during the present month.

CONNECTICUT

The Tuttle Brick Company of Middletown, Conn., is planning the erection of a large steel and brick garage on its premises to care for the several automobiles operated by the concern.

The brickyards in and around Berlin, Conn., are rapidly being closed for the season, the last of the summer's output now being in the kilns. All of the yards have had a busy season due to a revival in building that has been in progress all over New England, and also to the fact that brick is "coming back" as a construction material. The popularity of concrete block seems to be on the wane.

DISTRICT OF COLUMBIA

Brick manufacturers operating in and near Washington, D. C., report that while they are not receiving many large

SAY I SAW IT IN BRICK AND CLAY RECORD

orders at this time, general business conditions are very satisfactory for this season of the year.

It is thought that the committee in charge of selecting the face-brick for the new Department of Interior building in Washington, D. C., has reached a conclusion, and that the contract will be awarded within the next week or ten days. Tests are still being made of the samples submitted by the Washington Brick & Tile Co., which was awarded the contract for the common-brick.

The Hydraulic-Press Brick Company has secured an order for the light buff face-brick to be used on the new $500,000 McCormick apartment in Washington, D. C., which, it is said, will be one of the most beautiful buildings of a residential nature in the city. The same company also reports the contract for furnishing 140,000 gray impervious brick for Johns Hopkins Hospital.

ILLINOIS

The Columbia (Ill.) Clay Works has been sold to Charles J. Crawford, of St. Louis, Mo., who expects to reopen the plant and operate it on a very extensive scale.

A campaign of education in silo construction is being carried on by the Sheldon Brick and Building Supply Company, of Champaign, Ill., in which the use of brick in silo building is strongly advocated. An attractive pamphlet is a part of the campaign.

The Egyptian Brick Company of Murphysboro, Ill., has received an order from the government for two million brick to be used in the Canal Zone, according to W. H. Hill, president of the company. The brick are to be shipped by rail to New Orleans and from thence to Panama by water, and are to be used for paving purposes.

The Sheldon Brick and Building Supply Company, of Champaign, Ill., is building a brick silo 16 by 60 ft. at Urbana, for the University of Illinois. This will be used as a part of the ideal feeding plant that is now under construction at the College of Agriculture.

Speaking of record runs on common-brick, the Carey Brick Company, with offices in Chicago, reports that during one day last year 367,000 brick were made at its plant in eight hours, and that a daily production of 340,000 is a common occurrence. The company further states that October of the present year has been the banner month of its history and that, so far, November promises to equal this high level.

The Springfield (Ill.) Paving Brick Company is filling an order of between 2,000,000 and 3,000,000 builders for the Western Cartridge Company's new plant in Springfield. There will be forty-eight buildings in the group—all of brick. The plant is not running on pavers, but an order of 750,000 paving-brick for Monticello, Iowa is being filled from stock. W. G. Poat, formerly of Newport, Ky., is superintendent.

INDIANA

The Natural Products Company, Indianapolis, Ind., has been incorporated with a capital stock of $1,000,000, and, among other things, will manufacture clay products. State Geologist Edward Barrett has been elected president of the company and John B. Rice, secretary, the directors being Oliver E. Hawn, August Kuhn, George Weidely, Mr. Barrett and Mr. Rice. Headquarters of the company have been established in a large Indianapolis office building.

The Indiana Brick Company, of Anderson, Ind., recently received an order for 150,000 face-brick to be used in a post-office building at Fulton, Mo. This is the fifth order to be received by this company for brick to be used in the erection of federal buildings at Fulton. In addition to these, it has also furnished the brick for post-office

PYROMETERS

"We take pleasure in handing you enclosed order of a duplicate installation of your equipment at our Findlay, O., plant. This installation to be placed at our Washington, Pa., plant."

The Findlay Clay Pot Co.

This is the inevitable result of a Stupakoff installation.

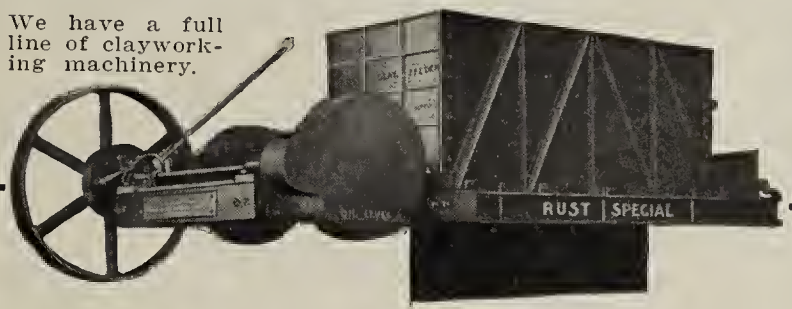
The Stupakoff Laboratories
Pittsburgh, Pa.

THE RUST SPECIAL

is the Best in Clay Feeders—not because we claim it, but because clay-products manufacturers in all parts of the country have proven it the best in actual use. Let us explain its advantages—how it can make money and save it for you.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

We have a full line of clayworking machinery.



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Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

Let us Serve You.

Jackson & Church Company
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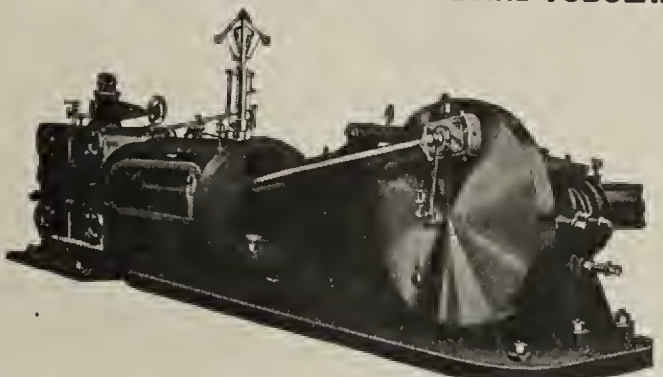
POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870
BURLINGTON, IOWA

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Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

How to Analyze Clay

A practical work for practical people. A Text Book for Clay Analysis, by Holden M. Ashby, Prof. of Organic Chemistry, Harvard Medical College, and Instructor Chicago Night School of Chemistry. An Aid to Beginners and full instructions for making clay analysis. 64 pages, with illustrations. Postpaid to any address in the world, $1.00.

Brick and Clay Record
445 Plymouth Court, Chicago, Ill.

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.–CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only high in strength but dependably uniform.

A perfect vitrified paving block of your manufacture used with a perfect cement filler of Lehigh Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use Lehigh Cement than all others combined.

You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH CEMENT

Cement Grout for Permanence.

buildings at Brookfield, Mo., Harriman, Tenn., Laurens, S. C., and Carrolton, Ga.

IOWA

Brick made in Sioux City, Ia., will be the chief material used in the construction of the new $185,000 freight depot and office building of the Chicago and Northwestern Railroad Company, to be erected in that city soon. Engineers and architects of the Railroad Company who have the planning of this building in charge, have had several conferences with Sioux City brick manufacturers during the past month, with the result that details of the work involving the use of local brick have been completed. The contract for the entire building will be let with the understanding that Sioux City brick will be used.

KANSAS

The Pittsburg (Kas.) Paving Brick Company is supplying from its plant at Kansas City, 1,000,000 paving-brick for Clay Center; 1,000,000 for Topeka; 500,000 for Girard (all Kansas points), and 500,000 for Mansfield, La.

KENTUCKY

At Lexington, Ky., the Epworth Methodist church is planning to build an addition to its building in which brick will be used.

T. Bishop, of the Southern Brick and Tile Company, Louisville, reports brick shipments to points out in the state as being very good, while drain-tile orders are more than satisfactory. Mr. Bishop is now working on several tile contracts and finds that the landowners are becoming more keen about improving the drainage on their farms.

The Paducah (Ky.) Clay Company, which was recently incorporated, has a million yard vein of black plastic clay in sight but has not completed putting down test holes, according to H. R. Lindsey, president of the company. The product of the mine is being shipped to tile manufacturers and potters.

Increases in orders for sewer-pipe are reported by the Owensboro (Ky.) Sewer Pipe Company, the bulk of the present demand being centered in the middle Southern states where many municipal improvements are being made. John D. Reeves, manager of the company, states that the outlook for next year is good. The plant is operating to full capacity.

K. P. Grahn, president of the Louisville Fire Brick Company, with plants at Louisville and at Grahn, Carter county, Ky., reports that business is showing a marked improvement, with both the company's plants operating. The company supplies the fire-brick needs of a number of the coking concerns which have large plants in the coal mining sections of the state and, with these coking ovens again in operation, the demand for fire-brick is improving.

The Coral Ridge Clay Products Company, Louisville, Ky., has secured the order for the hollow, common and face-brick which are to be used in the new residence being erected in Castlewood for Brainard Lemon, a wealthy jeweler. This is probably the most exclusive residence section in the city and the buildings that are erected there are of high quality. In addition to the brick contract for the Speed building in that city, George C. Fiedler, general manager of the company, has obtained the order for the brick and tile to go into the six-story warehouse which will be erected in back of this building. This job will call for another 40,000 pieces of hollow-tile and about 150,000 brick.

MASSACHUSETTS

A new electrically operated conveyor is being installed at the Curtis brickyard at Chicopee, Mass. In the past con-

SAY I SAW IT IN BRICK AND CLAY RECORD

siderable difficulty has been experienced in securing sufficient help during the busy summer season, but it is believed that the installation of the conveyor will materially relieve the situation.

Fire at the plant of the Boston Brick Company, Chelsea, Mass., recently caused a bad scare in the neighborhood, known as the "Mill Hill" section of the city. Sparks from one of the kilns set fire to the roof of one of the buildings at the plant, starting a lively blaze. Firemen, however, were able to prevent the spread of the flames.

MICHIGAN

The Flint (Mich.) Board of Commerce is now engaged in building nearly a thousand workingmen's homes, many of which are of brick. Flint is having a big boom at the present time, owing to the prosperity of its motor-car factories.

It is announced that Henry Ford will build his first farm tractors for the market in the village of Dearborn, Mich., the old Wagner brick yard in the southeast corner of the village being the site selected for the tractor plant. Several carloads of machinery have already been brought to the site and the old 50 H. P. engine which did service in the Wagner plant twenty years ago has been shined up and put back into service.

With orders at hand indicating an output of about 2,000,000 more brick than last year's production, officials of the Clippert & Spaulding Brick Company, of Lansing, Mich., are in the midst of one of the most promising seasons in a number of years, according to O. E. Spaulding, president of the firm. The company has been furnishing brick for a part of the Reo additions, the Prudden auditorium, administration building of the Michigan School or the Blind and the Capital Bank improvements.

Conditions in the building line in Detroit and nearby Michigan points are improving every day and the demand or brick and hollow-tile is steadily increasing. A year go at this time, all of the brick manufacturers in Detroit vere stocked with brick; now the plants are operating o capacity—some of them even working nights—to keep p with orders. It is a fact that never before has November given so great a volume of business to all classes of uilding materials and from the way that building permits re being issued, there will not be any let-up for another month or six weeks.

MINNESOTA

The Stillwater (Minn.) Manufacturing Company is pre- g to build a new brick kiln at its plant.

MISSISSIPPI

The Tupelo (Miss.) Brick and Tile Company has been ganized with a capital stock of $25,000 by L. G. Brown, J. High and others.

MISSOURI

A. C. Baird of the Kansas City Building Supply Com- ny says that orders are rushing and the business out- ok is unusually good.

Manager Coen of the Coen Building Material Com- ny, says that common-brick in Kansas City are cleaned as fast as they are turned out.

More than half a million paving-brick are being used in e Metropolitan Street Railway work in Kansas City, o. They are being supplied by the Pittsburg (Kas.) ving Brick Company.

The Hydraulic-Press Brick Company has obtained the ntract for the 850,000 face-brick that go into the new

BUFFALO
450 Rooms 450 Baths
Rates from $1.50 a day

DETROIT
800 Rooms 800 Baths
Rates from $1.50 a day
200 room addition building

CLEVELAND
700 Rooms 700 Baths
Rates from $2.00 a day
300 room addition building

Making Men Over

EVERY night we receive hundreds of tired men, worn out by a hard day in a strange city. And we make them over, and they go out next day *ready for it.*

Pleasant, well-ventilated, quiet rooms; good beds; courteous, gracious service; every convenience and comfort a tired man wants which a hotel can supply—these are among the good things you'll always be sure of at any Hotel Statler.

Your satisfaction guaranteed, whether you spend $1.50 or $20 a day.

Every—*every*—Hotel Statler room has private bath; outside light and air; circulating ice water; writing desk with plenty of stationery, etc.; local and long distance telephones; pin-cushion, with needles, thread, buttons, etc.; candle for low night-light, and numerous other unusual conveniences. Morning papers delivered free to every guest room.

You'll always find other brick men at any Hotel Statler. Most of them stop with us when in Buffalo, Cleveland or Detroit.

HOTELS STATLER
BUFFALO - CLEVELAND - DETROIT

Down in the Pit

Where the big shovel is loading cars—half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive light, speedy, powerful— to yank the loads out—the empties in.

Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD

THWING HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Acme Brick Company, Marietta, Ohio.
Adel Clay Products Co., Adel, Iowa.
Armstrong Cork Company, Beaver Falls, Pa.
Baker Clay Company, Grand Ledge, Mich.
Buckeye Firebrick & Clay Co., Scioto Furnace, Ohio.
Cork Brown Lime Company, Oshkosh, Wis.
Darlington Clay Products Co., Darlington, Pa.
Dressler-American Company, New Castle, Pa.
Eureka Brick Company, Richmond, Va.
Ludowici-Celadon Co., New Lexington, Ohio.
Milton Brick Company, Milton, Pa.
Minneapolis Clay Brick Co., Minneapolis, Minn.
Murphysboro Paving Brick Co., Murphysboro, Ill.
Heinz Roofing & Tile Co., Denver, Colo.
Puritan Brick Company, Hamden, Ohio.
Rookwood Pottery, Cincinnati, Ohio.
St. Lawrence Brick Co., La Prairie, Quebec.
Sebring China Pottery Co., Sebring, Ohio.
Straitsville Impervious Brick Co., New Straitsville, O.
Tuttle Brick Company, Middletown, Conn.
Upper Sandusky Tile Works, Upper Sandusky, O.
O. Zimbal Brick Company, Sheboygan, Wis.

Twenty-two New Users of THWING PYROMETERS
during the past twelve months is not a bad showing while business was so dull.

Others are on the way

THWING INSTRUMENT COMPANY
437 North Fifth Street PHILADELPHIA

Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the

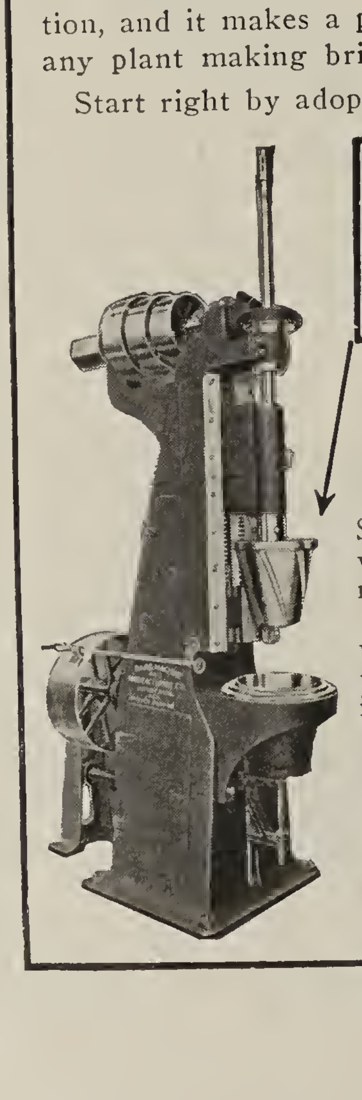
Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



St. Joseph Hospital, Kansas City, (Mo.) and also for 150,000 for the Nettleton Home.

Elliott & Godfrey have been operating their shale press brick plant in Kansas City at full capacity all summer and fall, and have sold their product readily and at a good price. They have a capacity of 40,000 brick a day.

The Hydraulic-Press Brick Company of St. Louis, Mo., has brought out a new brick called the "Old English," in which is reproduced in a modern way a brick four centuries old. The brick walls of old England are marvels of constructive and lasting genius, and it was these walls that were studied for color and texture before they were produced here. The first representation of their use in a practical way is seen in the residence of F. A. Seiberling, at Akron, Ohio, where a structure costing $1,000,000 has been erected along Tudor lines.

NEW YORK

Within a few weeks it is expected that the improvements which have been under way at the Ithaca Brick and Tile Company's plant at East Ithaca, N. Y., will be completed and the plant put in operation. The new buildings which are being erected and the modern equipment installed, will enable the plant to handle its winter production much better than it ever has been able to do, owing to the necessity of previously operating only under the most favorable weather conditions.

OHIO

The Granite Clay Company, Akron, Ohio, has increased its capital stock from $250,000 to $325,000.

The Belden Face Brick Company, Port Washington, Ohio, has increased its capital from $150,000 to $200,000.

The Lima (Ohio) Brick and Tile Company has increased its capital stock from $30,000 to $50,000.

The Cleveland (Ohio) Brick and Clay Company has increased its capital stock from $100,000 to $200,000.

The city of Bellaire, Ohio, has made overtures to the Gil Clay Pot Company, of Muncie, Ind., which contemplates rebuilding after a recent destructive fire.

Small orders for face-brick are the rule just now, according to the Moores-Coney Company, most of the larger job in sight around Cincinnati having been disposed of and, fo the most part, completed.

Fire in the barns of the Ohio Brick Company, Birmingham, Ohio, recently, caused $1,000 damage, which included the loss of the building, property content and horse.

The Farr Brick Company, of Cleveland, Ohio, reports rushing business, having had eighty-five teams and ten auto trucks working day and night since the first of the month.

The Dennison (Ohio) Clay Company has been incorporated with a capital stock of $10,000 by Remah K O'Donnell, Emerson S. Abuhl, Thomas W. McCaw Edgar E. Reid and Mary M. O'Donnell.

Tests are now being made of the fire-clay found in th vicinity of Coonville, Ohio. It is understood that loca interests are planning the establishment of a brick an tile plant if the results of the tests warrant.

The plant of the Cincinnati Brick Company has been close down for a month or so, following a pronounced slowing u in business toward the end of September. Up to that tim the company reports, business was good, and orders calle for deliveries very nearly up to the capacity of the plant.

H. Suer & Sons, Cincinnati, Ohio, brickmakers, have sh down their yard, an ample stock of brick having been accum lated to meet demands during the remainder of the fall a

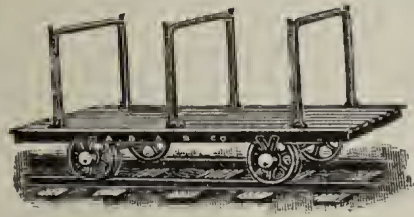
SAY I SAW IT IN BRICK AND CLAY RECORD

THE A. C. & MFG. CO.

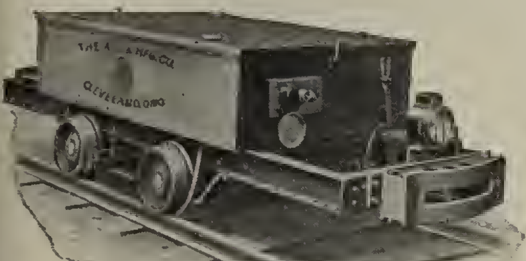
REDUCE YOUR HANDLING COSTS
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor

ATLAS
High Efficiency
Cars and
Electric Locomotives



No. 126 Double Deck Dryer Car



will meet your requirements. Let us send you catalogue and quote prices.

Storage Battery Locomotive for general use.

THE ATLAS CAR & MFG. CO.
1287 Marquette Road, Cleveland, Ohio

Your Ware Is As Good As You Make It!

To make a merchantable class of ware it devolves upon you to perfect each single phase of the manufacture—from the selection of the clays to the sorting of the finished product.

The correct measuring and mixing of two or more raw clays is of tremendous importance.

Financial success or financial failure depends upon the ability of your men or machines to standardize the batch.

To depend on your men to measure, to guess, to mix with shovel—or slide gate and chute is to have the batch run wild.

A dependable machine is your only alternative, and that machine is the Schultz proportioner—it measures, mixes and tempers. Set it and leave it. It does its work well.

Get details from

A. L. Schultz & Son
Clay Plant Engineers
1675 Elston Ave.
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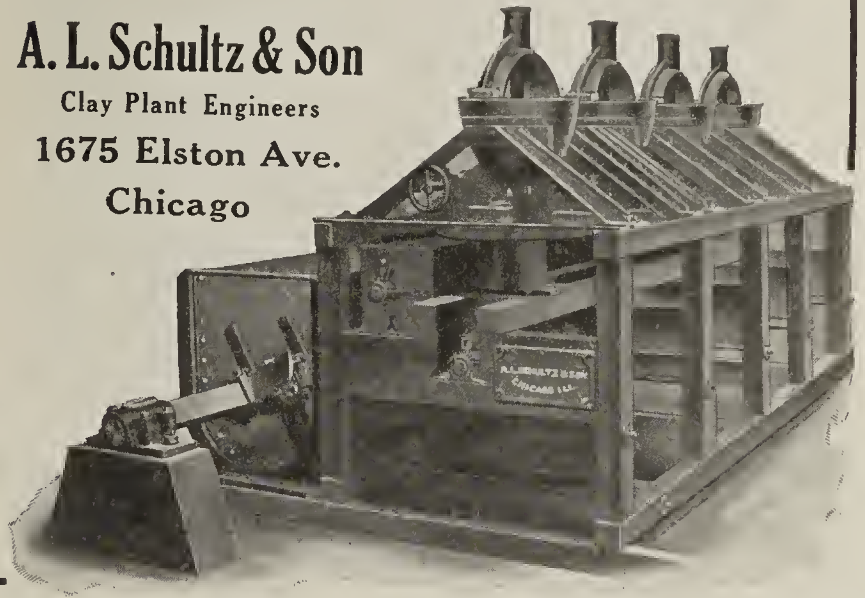


POSTERETTES

200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral—and that moral means better business for the men who make paving-brick.

How about using some of them—now?

Printed in THREE colors

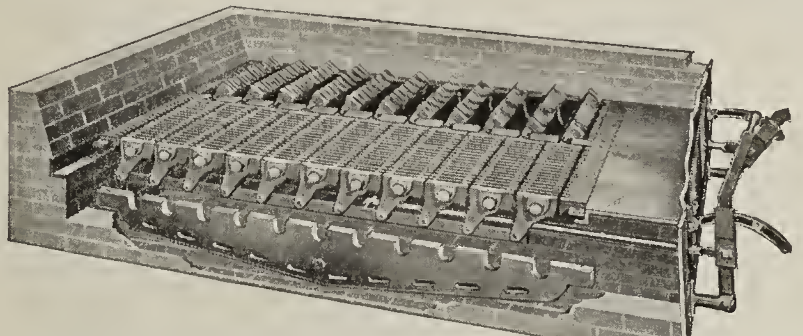
Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO

THE CANTON GRATE



Shaking and Dumping

The Canton is the grate to keep your fires clean and free burning, with the least time and labor, and with the fire doors shut. Absolutely no loss of fuel while shaking. It is easily installed. Bars may be replaced while furnace is in operation.

Convenience, Economy, Durability
are three important features, and these combined with simplicity of parts, ease of installation and operation, must convince engineers of the unusual merit of Canton Grates.

Our catalog fully illustrates and describes them. Write for it today.

The Canton Grate Company
1706 Woodland Ave., N. W. CANTON, OHIO

Marion
GASOLINE SHOVELS

THIS New Marion is ready when *you* are; bigger than the toughest digging; runs at low cost; needs no licensed engineer. Owning and operating a Marion Gasoline Shovel means

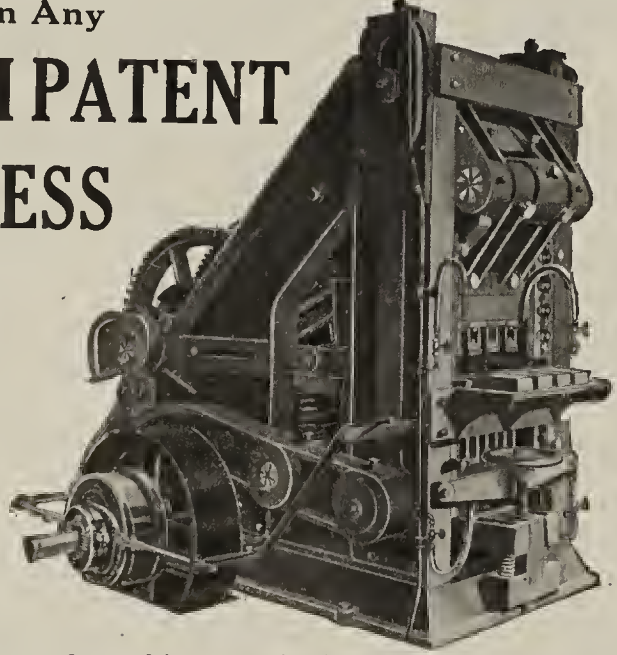
You Can Really Do Your Work Successfully With One Man in the Cab

You want to remember THAT—for he has only one pair of eyes, and if he is going to do a good job, he must keep them on the work out in front.

Write us today for full information, mentioning whatever facts about your work will help us make our reply *more really useful* to you. Special Catalog 951 upon request.

THE MARION STEAM SHOVEL COMPANY
Established 1884 Station A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
68 Manufacturers of Excavating Machinery of Every Description

No Pressure Arms, Gears or Frames Have Ever Been Known to Break
On Any
GRATH PATENT PEERLESS PRESS



Right now—every day—this press is demonstrating a high speed combined with great strength and simplicity.

It Is Making as High as 34,000 Dry Press Brick in Ten Hours on a Four-Mold Type!

Write us for details—we'll not send a salesman to see you until you ask us to. But get our catalog showing our complete line of brick and roofing-tile machinery.

ILLINOIS SUPPLY & CONSTUCTION CO.
Century Building ST. LOUIS, MO.

winter. The firm reports a fair average season, on the whole, with business holding up very well.

The Sugar Creek (Ohio) Clay Products Company has been awarded a contract by the Wheeling and Lake Erie Railroad Company to erect a new freight and passenger station at Sugar Creek, near New Philadelphia, Ohio, replacing the one destroyed by fire some time ago.

The Anders Shale Brick Company, whose hollow-brick business is nearly always active, is one Cincinnati brick concern which will probably operate all winter, unless business falls off to a point where there is no call for the product, as the plant is so constructed and equipped that operations can be conducted without reference to weather conditions.

The McArthur (Ohio) Brick Company has installed a sand crusher at its plant, partly to produce sand for its own use, and partly for shipment. The company recently received an order for 500,000 brick for a business block at Hillsboro, Ohio, and is also shipping brick to Vinton for use in the new high school.

It is the belief generally among brick manuafcturers in Cleveland, Ohio, that this month's big business is but the beginning of a sensational era. This belief is based upon the fact that virtually all bond issues looking to the industrial development of the city, were voted for favorably at the recent election.

There has been an unusual demand for brick in Cleveland, Ohio, since the first of November, in contrast to the lull during September and October. One of the biggest contracts placed this year has been closed with the Corrigan-McKinney Company, for a new steel plant in Newburg, Ohio. This deal involves 3,500,000 selected common-brick. It was placed with the Farr Brick Company.

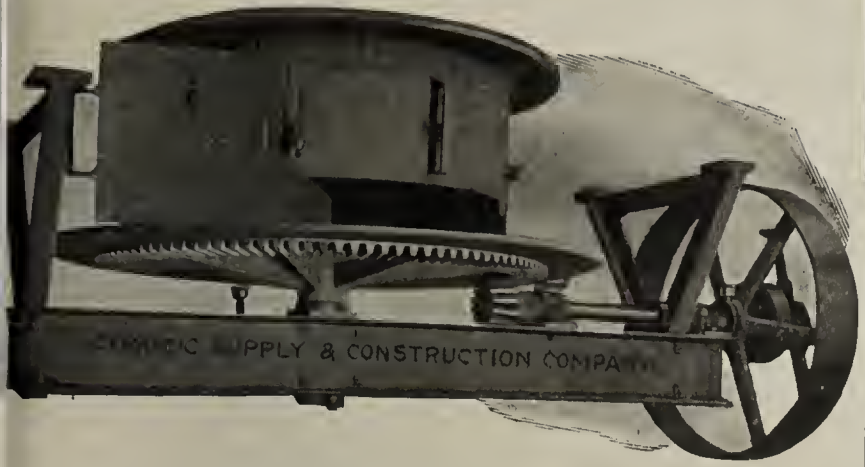
The W. E. Wright Company has taken over plant No. 1 of the Buckeye Sewer Pipe Company, Akron, Ohio, together with eleven acres of land. The new owner will enlarge and improve the plant. The Buckeye Company retains all the machinery and pipe on hand at its No. 1 plant, which it will consolidate with plant No. 2, where extensive improvements will be made.

The new brick highway connecting Youngstown and Hubbard, Ohio, and forming the last link in an improved road between Warren and Hubbard, by way of Youngstown, has been formally opened by the county commissioners of Trumbull county, with appropriate ceremonies. The road was built during the past summer, at a cost of about $19,000, and is an excellent piece of work.

A movement among the farmers and business men of Melvin, Ohio, where the plant of the Melvin Brick and Tile Company was recently destroyed by fire, has for its purpose the reconstruction of the plant, and the reorganization of the company. The loss on the plant amounted to about $14,000, of which only $2,000 was covered by insurance. The destruction of the plant was a distinct loss to the community, and the movement to rebuild it has considerable support.

The Lake shore road, otherwise known as Main Market Road No. 13, from the limits of Lorain County, Ohio, to the Cuyahoga County line, will be improved next year, probably by paving with brick, as the result of a conference of the municipal authorities of the county and the townships involved held a short time ago. It is estimated that a brick road can be built for about $25,000 a mile, as against $18,000 a mile for concrete, but brick is favored as being more economical on account of the lower upkeep cost.

Demand for hollow building tile is strong in Cleveland, Ohio, and while it will be some time as yet before the effects



"Bolt It to the Bin"

The Columbus Feeder

for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio

Yellow Strand Powersteel Truckline

It can easily move two loaded freight cars.

It coils up flat—takes up practically no room.

Its rated breaking strain is about 12 TONS.

Powersteel Truckline

is about 18 ft. long and ½ in. dia. Y. S. wire rope, equipped with strong drop forged hooks and heavy manila or wire slings—as desired.

Buy yours now for $6.50—test it—see it deliver the goods—then you will want one for each of your trucks.

Broderick & Bascom Rope Co.
703 N. Second St.
Saint Louis, Missouri

SEGER'S COLLECTED WORKS

A MINE OF KNOWLEDGE

Containing Many Nuggets of Valuable Clayworking Experience

We are receiving many orders for our recently-issued volume of Seger's Collected Works. Every clayworker has had an opportunity at some time or other to read some of the articles from the able pen of Hermann August Seger, and his writings have served as a base for progress in clayworking in every civilized country in the world. Seger's Collected Works, as issued by us, contains a collection of the articles that we think to be of the utmost value to our readers, and you could make no more profitable addition to your library shelves than by securing a copy of this work. It is handsomely bound in silk cloth, stamped in gold, and contains 304 pages of the best technical information. The size of the book is 6x9 in. Place your order at once before the edition is exhausted. Price $3.50, postpaid.

Book Department
"BRICK AND CLAY RECORD"
PLYMOUTH COURT, CHICAGO

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

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100 William Street New York
Chicago, Ill. Kansas City, Mo.
East Liverpool, O. Philadelphia, Pa. New Orleans, La.
St. Louis, Mo. Boston, Mass.

SAY I SAW IT IN BRICK AND CLAY RECORD

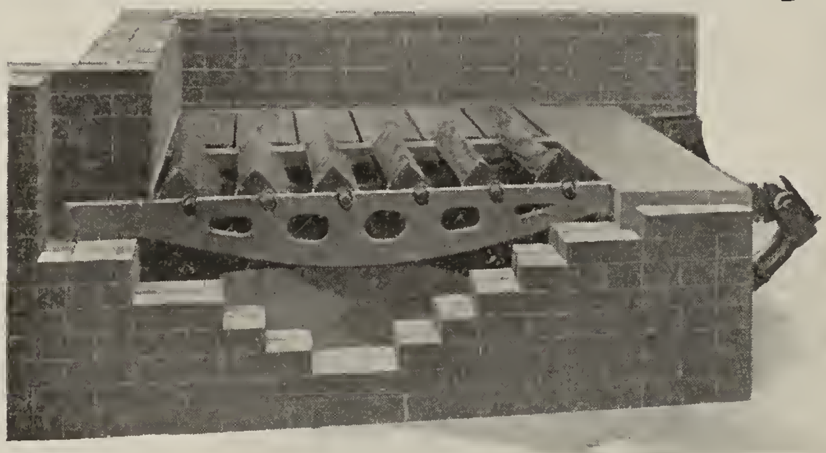
Try a
Cyclone Grate

on 90 Days' Free Trial

We have so much faith in our grates—they have proven such fuel-savers to other brick plants, that we are willing to make you this proposition:

We will install a Cyclone Grate in any brick plant, guarantee to save you in fuel, to increase evaporation, and guarantee them free from repairs for one year. If at the end of 90 days we have not proven what we guarantee, we agree to remove them and replace your old grates without cost to you.

Could Anybody Be More Fair?



Six Reasons Why You Should
Install Cyclone Grates:

1. Even distribution of draft.
2. No fuel gets into ash pit.
3. Locks level.
4. Burns cheap fuel.
5. No fingers to burn off.
6. Impossible to warp.

Write for catalog and full details.

Cyclone Grate-Bar Co.
Buffalo, N. Y.

of the recent election will be felt in this branch of the industry, members of the trade look for big returns when the public improvement get under way. The usual fall spurt is on now, contractors with buildings to complete before the winter sets in, being anxious to cover their requirements. Satisfactory returns in this connection are reported by the Camp Conduit Company. In contrast to the strong market for brick, however, the hollow-tile dealers complain that prices could and should be better.

The Guernsey Earthenware Company, of Cambridge, Ohio, has received a number of letters from very prominent concerns thruout the country, commending the chemical porcelain in which that firm specializes. Among others who have written are Thomas E. Edison (a personal letter), Elton Fulmer, head of the department of chemistry at the State College of Washington, Firman E. Baer, of the department soils at West Virginia University, J. T. Baker, president of the J. T. Baker Chemical Co., of Chicago and from the Bureau of Animal Industry, United States Department of Agriculture.

A representative of the Burton-Townsend Company of Zanesville, Ohio, reports, after an inspection of the company's property, that the new equipment recently installed has given materially increased facilities for production. One day recently the No. 1 plant, which has just been equipped with new machinery, converted 420 tons of clay into 90,000 paving brick. At present there are three plants in operation, the No. 2 plant having a capacity of 80,000 brick a day and No. 3 about 30,000. Work will soon be started on the construction of the fourth unit on this company's property, which will be followed by plant No. 5 within a short time, the latter being twice the size of the No. 2 plant. To date the company has invested over $1,000,000 in new equipment and property, and is receiving heavy orders for future delivery.

OREGON

The Fairmount Brick Company of Monroe, Ore., is adding machinery at its plant for a tile department.

PENNSYLVANIA

The Oak Brick Company, with a capital stock of $30,000, has been incorporated by R. W. Hays and F. P. Seubert, of Latrobe, Pa.

Fire broke out recently in the brick plant of Gorgas and Pierie Company, Philadelphia, Pa., doing considerable damage.

Joseph B. Shaw, George L. Burgess, W. J. Straw and J. D. Burgess, all of Pittsburgh, Pa., have incorporated the Pittsburgh Brick Company with a capital stock of $25,000, to manufacture and deal in clay products.

The Bloomsburg (Pa.) Brick Company, has started work on the erection of a new kiln at its plant which will have a capacity, when finished, of 70,000 brick. This is the eighth kiln to be built at the Bloomsburg plant, the additional capacity being made necessary by a large number of orders that the company has been receiving.

The Keystone Brick Company of Philadelphia, Pa., has brought a tract of land comprising thirty-five and one-half acres which will be used in the enlargement of the plant. This is part of a sixty-eight acre tract, the first parcel of which was bought by the company in February, 1911.

The National Fireproofing Company, Philadelphia, Pa., reports business as being of an excellent character. Numerous orders have been received for small quantities of hollow-tile as has also the contract for supplying the fireproofing to be

SAY I SAW IT IN BRICK AND CLAY RECORD

CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Wood Moulds
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

Get Out Your Pencil and Figure

How much would you save if you could lop off twenty-five per cent of your coal bill for one year?

Wouldn't it mean a nice addition to your profit column?

Well—

The Underwood Producer Gas Burning System
(Patented)

is doing this for others—in some cases it has cut the fuel bills in half.

Why not let us see whether we can do as much for you?

Our engineers are at your service—they will go anywhere on request—make a thorough examination of your plant—give you an estimate on the cost of installation, and the saving you can effect—and there will be no cost to you or obligation for this service.

We have some mighty interesting facts and figures that will convince you.

The Manufacturers Equipment Co.
"Everything for the Clayworker"
Dayton, Ohio, U. S. A.

YOUR GOOD WILL

— it is the biggest asset
in our business today

The Hook System installed in old or new Kilns has been and is today a success —because of our determination to satisfy each purchaser of a system—inherently correct—by designing, fitting and teaching thoroughly, according to local conditions and requirements. We can convince you of the merit and economy of our system. Say you're interested—there's no obligation on your part.

The Hook Patent Kiln Co.
Main Office: VIGO, OHIO
Canadian Office:
250 Dufferin Street, TORONTO, ONTARIO

used in the construction of the new Hotel Casey, which is to be erected at Scranton, Pa.

The Peerless Brick Company of Lebanon, Pa., has been receiving a large number of orders recently, one of the largest calling for one hundred and fifty thousand brick. The brick to be used in the local Armory building, the contract for which was secured by the Peerless Company, has already been shipped.

Philadelphia brick manufacturers report a good demand. Several have stated that business has not been so brisk in many years, and that there is every indication that this condition will continue to exist for some months to come. The demand for brick has been so great that prices have jumped, leading manufacturers quoting $6 and $7 per thousand for brick formerly selling at $5.87.

The Queen's Run Fire Brick Company, of Lock Haven, Pa., has issued an attractively printed pamphlet describing its plant and giving some points on its history. Among other things, it tells how the Queen's Run Fire Brick Company organized in 1836, when it had a weekly capacity of six thousand fire-brick. Today it has three hundred thousand weekly capacity or fifty thousand brick a day. The booklet is called "Interesting Facts" and the Queen's Run Fire Brick Company will doubtless be glad to send a copy to anyone who will write, asking for it.

The Bingen Brick Company, Ltd., Saucona, Pa., recently announced that the business of the firm is in a most flourishing condition. The plant has an output of 30,000 brick per day or a yearly capacity of 7,000,000, and at the present time is operating to capacity, contracts having been entered for every brick that the plant can manufacture to January 1, 1916. Large orders have been received from the Bethlehem Steel and the Lehigh Coke companies, beside many other smaller contracts. Under the careful management of Morris Brewer, L. L. Sterner and W. M. Weierbach, the business has grown until shipments are now made to all parts of the country.

Philadelphia brick manufacturers state that business has been of a most favorable nature for several weeks. There has been a decided impetus in building operations and the demand for face and common-brick has been steady and heavy in volume. While there has been a falling off of dwellings, the increase in apartment houses has more than offset this loss. Several prominent brick manufacturers scattered throughout this section of the state have received large contracts to supply brick for use in industrial construction. The demand for vitrified brick is not as good as might be expected at this season of the year, as road work in and about Philadelphia has been progressing very slowly.

VERMONT

A small fire at the Williams Brick Company's plant at Vergennes, Vt., during the early part of the month damaged a storehouse and another small building, but was extinguished by employes before serious loss resulted.

Most Vermont brickyards are now closed for the winter, the cold weather causing an earlier shutdown in this state than in more southerly territory. A number of the manufacturers, however, are planning extensive improvements and alterations to be made during the idle months, and will open in the spring with better facilities for handling business. With but few exceptions brickmakers report a profitable summer season, and are much encouraged by the outlook for next year.

WASHINGTON

Hurd, Decamp and Wood of Spokane, Wash., have completed deliveries on a contract for the laying of a twenty-one

SAY "I SAW IT IN BRICK AND CLAY RECORD"

THE THEW SHOVELS

Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

THEN JUST ASK

for Circular 22 A. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown, and other information incorporated of a character that will interest all clayworkers.

Thew Shovel which saves wage of 10 men every day

There are now

Over 300 Thew Shovels in the Clayworking Industry

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew features of particular advantage in this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send me circular 22 A, giving cost facts for digging clay and shale and other information of interest as advertised in "Brick and Clay Record."

Name........................

Address........................

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

Lower Cost Only One Advantage

EVERY belt user wants belting that will do his work well, yet at the same time the cost must be as low as is consistent with the service secured.

The low cost of GANDY STITCHED COTTON DUCK BELTING would be no advantage, if the belting itself did not offer many superior features: it is not affected by dust, moisture, oils, etc.

Gandy Stitched Cotton Duck Belting

For 36 years it has proved its ability to do the work as well or better than more expensive belts, yet the initial cost of GANDY is only about one-third that of leather belting, and much less than that of rubber belting.

Test it out. Ask us for samples. We welcome an opportunity to place our proposition before you.

The Gandy Belting Co.
732 West Pratt Street
Baltimore, Md.

New York Office
36 Warren Street

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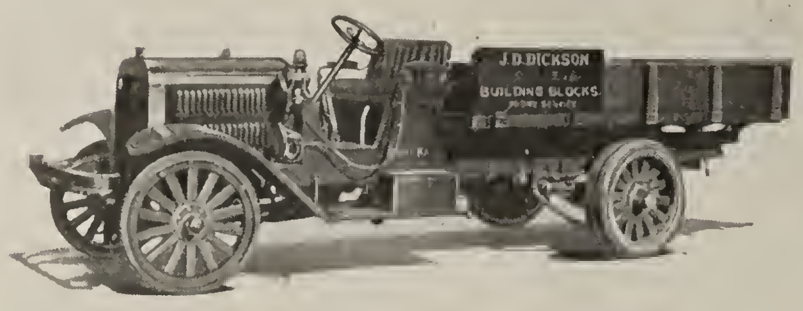

Best Adapted to Brick and Allied Industries

FOR the haulage of brick, paving blocks, sewer pipe, and heavy material of all kinds, 3½ to 4-ton and 6-ton KisselKar Trucks are peculiarly adapted.

They are uncommonly staunch and powerful, constructed to meet extraordinary emergencies.

It is a truck with reserve factors of strength and stability and a convincing record of reliable service. It's the truck for you. There are seven sizes in all—1000 pounds and up.

KisselKar Trucks
Seven Sizes

Owners of KisselKar Trucks are invariably truck enthusiasts. We would like to have you know their experiences.

We would like to have them tell you of the great dependability and economy of their trucks.

We would like to have them tell you of the vastly improved service over horses, of the new trade won through increased delivery area and the general advertising value of their vehicles.

Ask us who are using KisselKar Trucks in your line—then write to them. Also say you would like a copy of our new portfolio with 500 illustrations—it will interest you.

Kissel Motor Car Company
568 Kissel Avenue, Hartford, Wis.

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

inch vitrified clay pipe sewer for the city of Chehalis, Wash., at a contract price of $17,575.

The Denny-Renton Clay & Coal Co. of Seattle and Portland is supplying vitrified clay pipe for the sewer system now being installed at Forest Grove, Ore. The contract includes 6,000 feet of 16-inch, 55,000 feet of 8-inch and a large quantity of 6-inch pipe.

Willis R. Lebo & Co. of Aberdeen, Wash., agents for the Washington Brick, Lime and Sewer Pipe Company of Spokane, Wash., have secured a contract to supply 60,000 pressed brick for the Industrial Training School for Girls at Grand Mount, Wash.

The Consolidated Supply Company has been formed to take over the Spokane branch of F. T. Crowe & Co., and the sales department of the Idaho Lime Company. The newly formed organization will handle a complete line of building materials, specialties and contractors' supplies. Offices have been opened at West 1310 Ide Avenue, Spokane, Wash. The officers are J. H. Evans, president, F. T. Crowe, vice-president, J. E. Shields, salesmanager and C. A. Bartleson, secretary-treasurer.

Pottery Notes

A Resume of the Activities of the Potters and Some Mention of their Plans for the Future.

The Warwick China Company, of Wheeling, W. Va., which is now operating its seven kiln plant to capacity, will show the largest volume of production in the history of that plant during the present year. This company formerly manufactured semi-porcelain dinner-ware, and some time ago, started the manufacture of vitreous hotel china and china dinner-ware. Since that time the volume of production has advanced by leaps and bounds.

The fact has just been made known that Columbiana county is Ohio's largest pottery producing county with Mahoning county second. In reference to the latter, the Sebring potteries, which are the only ones in the county, had a total combined production during 1914 of $2,504,726, or 16.32 per cent of all the pottery produced during that period in Ohio. The production for Columbiana county was $7,095,749, or 46.22 per cent of the pottery produced within the state.

Charles F. Goodwin, secretary of the United States Potters' Association, and John Stamm, formerly general manager of the National China Company, of East Liverpool, Ohio, but now with the Croxall Chemical Company, a pottery supply concern, have been elected members of the Board of Education at East Liverpool. Wilse Orr, a well known potter of East Liverpool, has been elected mayor of that city.

The executive committee of the Mexia (Tex.) Commercial Club has closed a deal with H. P. Turner and Sons, of Athens, Tex., to establish a pottery at Mexia in the near future. This plant is to give employment to about twelve men, and will manufacture about fifteen cars of ware each month, consisting of jars, jugs, crocks and cooking vessels.

Hal N. Huston, for a number of years identified with the sales departments of different potteries at Sebring, Ohio, has severed his connection with the Saxon China Company, of Sebring, to become associated with the sales department of the Thompson Pottery Company, at East Liverpool.

SAY I SAW IT IN BRICK AND CLAY RECORD

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

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Keller Brick Co., The, Cuyahoga Falls, O.	8
Metropolitan Paving Brick Co., Canton, O.	5

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Hocking Valley Pro. Co., Columbus, O.	8
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Maurer & Son, H., New York City	3
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Evans Clay Mfg. Co., Uhrichsville, O.	3

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Pittsburg Tile Mfg. Co., E. Liverpool, O.	8

Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co.. Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Citadel—Citadel Brick & Paving Block Co., Ltd., Quebec.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
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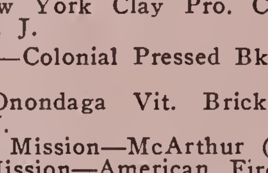

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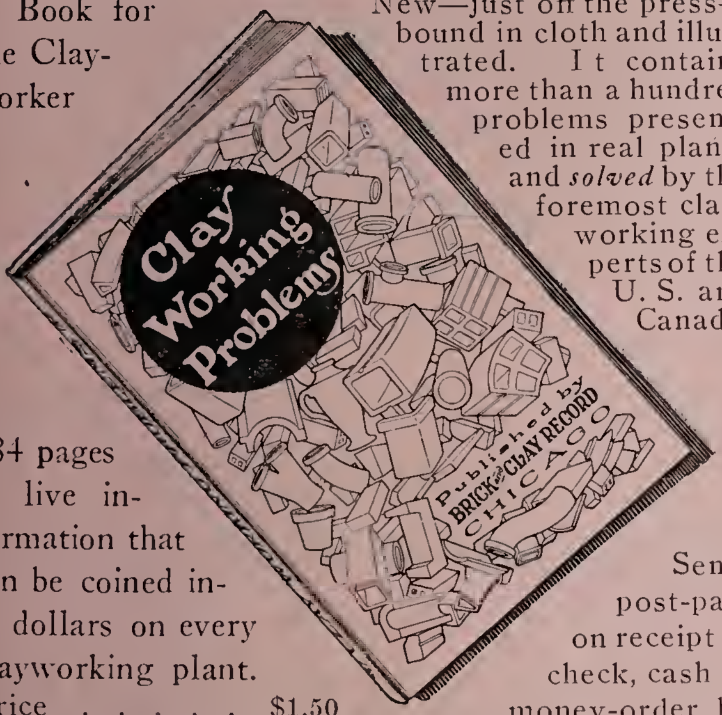
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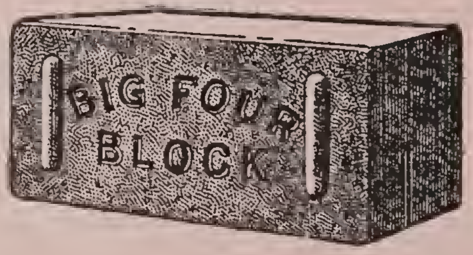

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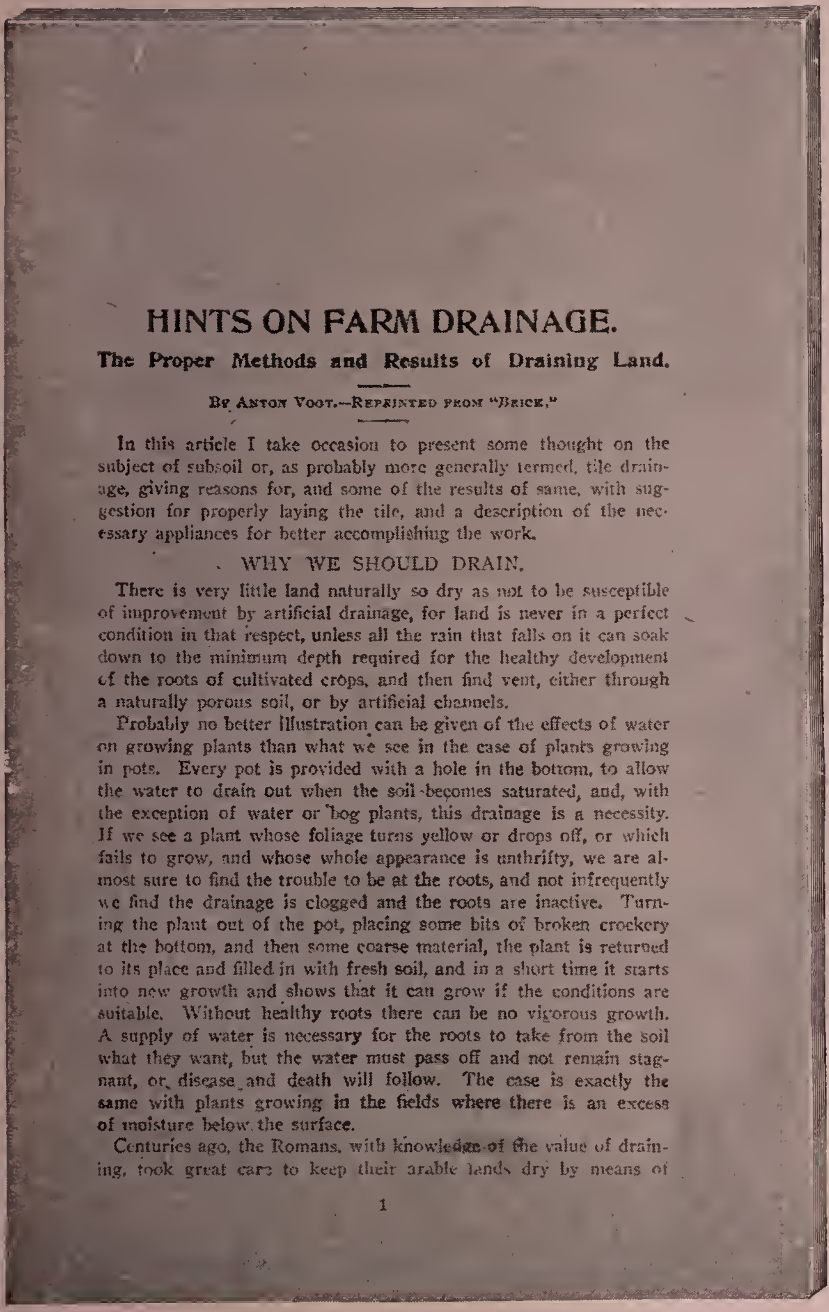

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Schultz & Son, A. L.
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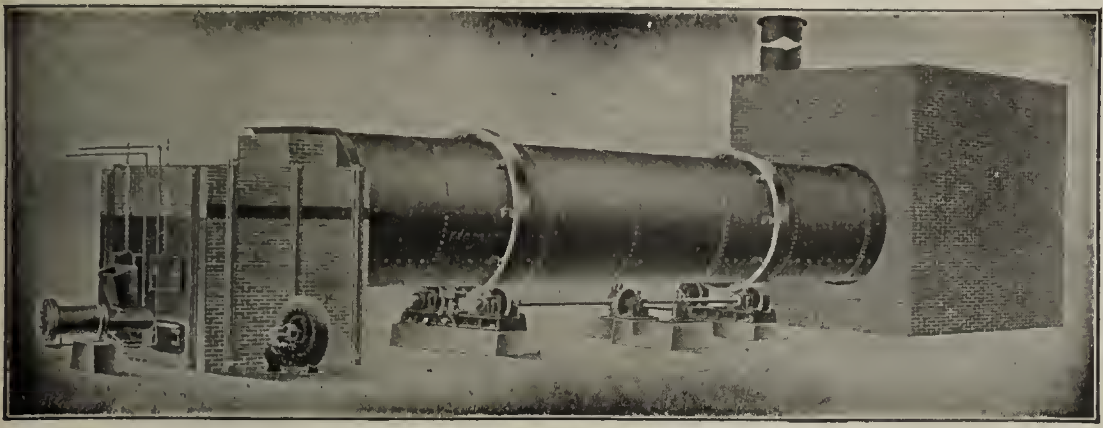

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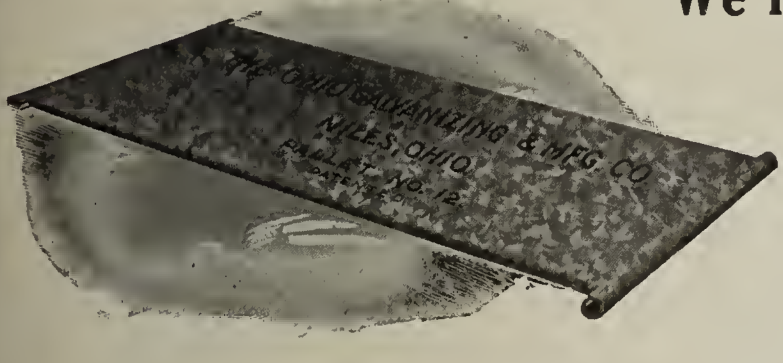
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Chapter XII....................................Texture and Scale
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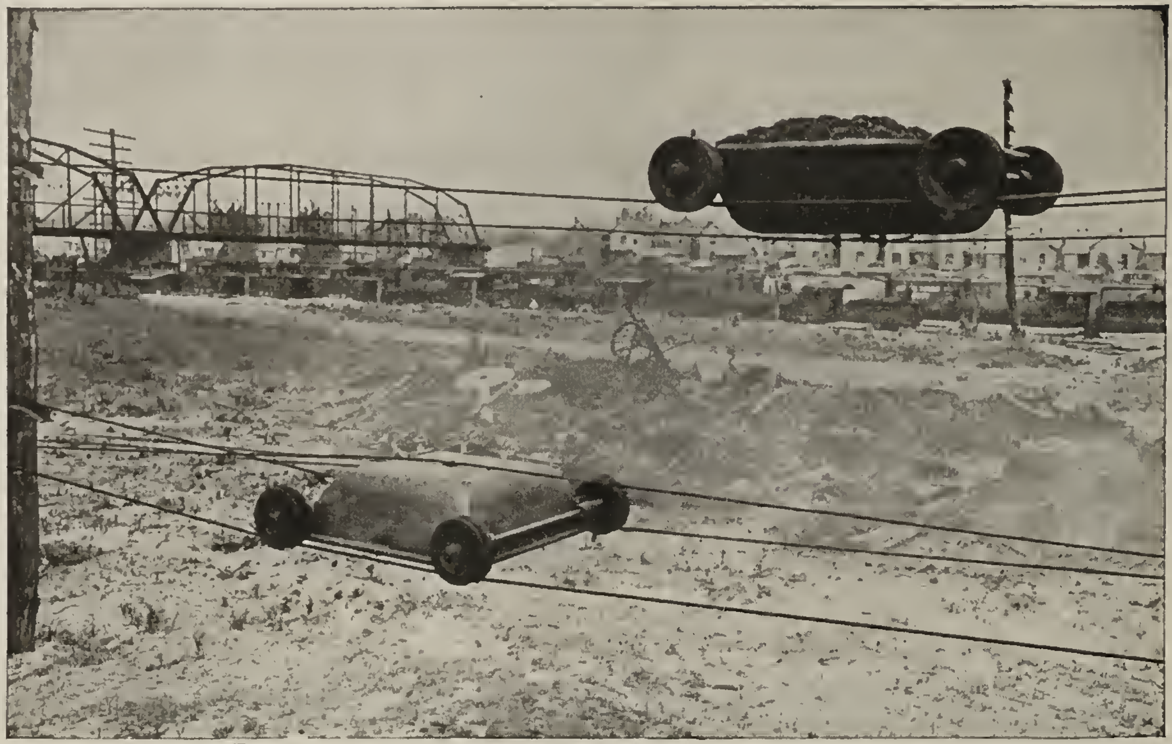

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This material is in or can be brought to a small bin with discharge chute attended by one man.

A continuous stream of barrows pass the bin each receiving its full load, the operator simply opening and closing a gate in the chute.

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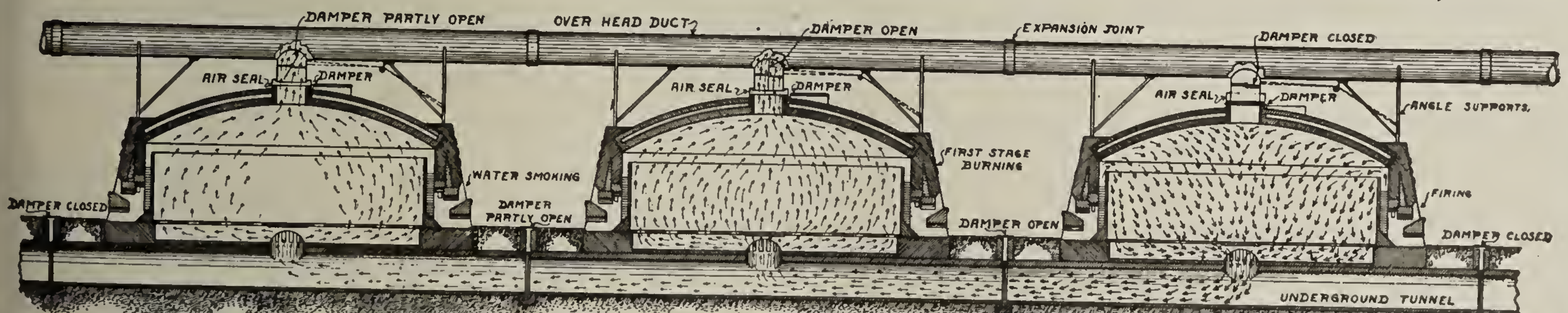

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One rotary brick press, capacity ten thousand per day.

Two hydraulic tanks.

Miscellaneous brick machinery.

Above machinery good as new. Will sell very cheap for cash. Inspection and inquiries invited.

Artesian Stone & Lime Works Co., 2500 Grand Ave., Chicago, Ill. 11-2-1

FOR SALE—777 Raymond stiff-mud machine, repress and semi-automatic cutter, good as new, price very low. 20x27 horizontal heavy-duty Corliss Russell engine. Two horizontal tubular boilers 72x18; 6x8 horizontal high speed automatic cut-off engine. Address: 11-C, care of "Brick and Clay Record." 11-2.

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell. La. 6-2-12

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—Two 90 h.p. gas engines at $225.00 each. These engines are practically new, equipped with magnetos. Must be moved immediately. Topper Bros., Columbus, Ohio. 11-3.

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAYWORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—At your own price: one Iron Quaker soft-mud brick machine and all auxiliary equipment. It has made less than 500 M brick. Also Brewer brick and tile machine, 75 cast-iron dryer cars. All in good condition. Cedar Rapids Brick Co., Cedar Rapids, Ia. 11-2TFX

FOR SALE—One 125 h.p. boiler, one 100 h.p. engine, 15 pulleys, 50 ft. 4-inch shafting with hangers. J. P. Vogan, Franklin, Pa. 11-2-6

FOR SALE—200 tons good used 25 lb. rail. Will sell any quantity at $20.00 per ton. Also 65 lb. and 80 lb. rail. Topper Bros., Columbus, Ohio. 10-2-3

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing. Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

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Inventions Protected.
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All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

RAILS

all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

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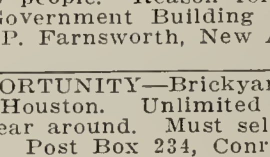

J-M HEAT TREATMENT

For a lasting, gas-tight, air-tight Kiln, use J-M Heat Treatment

The importance of sound Kiln masonry is well known to every brick and pottery manufacturer.

The maintenance of constant draft, temperature and even kiln efficiency requires constant watchfulness against masonry imperfections.

J-M HEAT TREATMENT

is the one positive way to insure lasting Kiln masonry. It comprises the use of two cements, No. 31 and No. 32.

No. 31 J-M High Temperature Cement when placed between fire brick and heated, vitrifies at a very low kiln temperature. It does not shrink or expand up to 3,200 degrees F. and increases constantly in mechanical strength up to that point. It effectively checks all tendency toward unequal contraction or expansion of the setting, thus preventing fissures, checks, bulging and settling.

No. 32 J-M High Temperature Cement protects the bricks from face cracking. It is used at the time of setting up as a coating over the entire inner surface of the masonry. This cement vitrifies at a very low temperature and grows in strength up to 3,200 degrees F., similar to No. 31 cement.

Over this entire range of temperature it never loses its property of flexibility and elasticity. If the bricks expand or contract—so does **No. 32 cement.**

FOR POTTERY SAGGERS

No. 32 J-M High Temperature Cement is an ideal material for coating pottery saggers. In addition to prolonging the life of the sagger itself, it protects and preserves the product against damage by gases or from the falling of disintegrated sagger particles.

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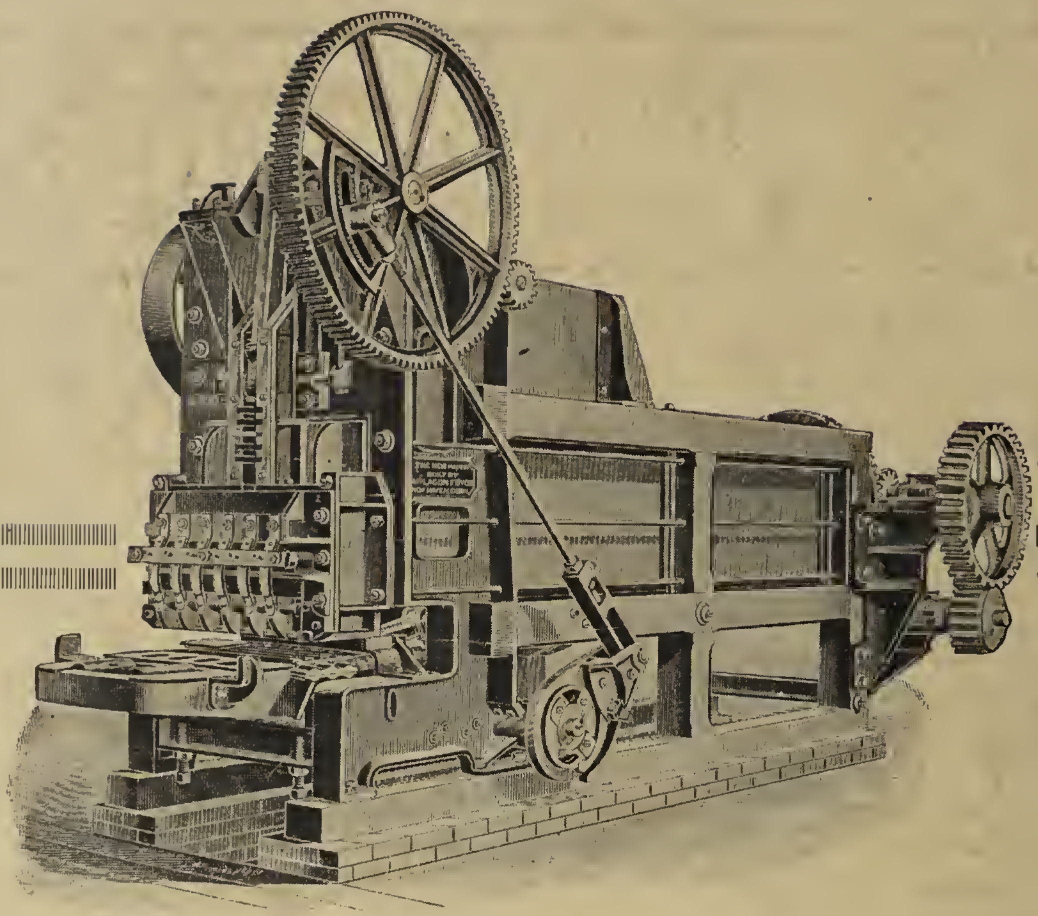
J-M HEAT TREATMENT

SAY I SAW IT IN BRICK AND CLAY RECORD



Assets and Liabilities

Every piece of machinery is an asset and a liability.

A high (or low) first cost does not make it a greater or less asset.

The interest, merely, on that first cost, is a liability. So is the repair cost. So is the cost of power to run the machine.

Estimated depreciation, or a sinking fund, calculated upon the life of the machine is a greater, or less liability, in proportion to the known life of the machine.

Efficiency—the amount of product and quality of product—determines the amount of the asset.

Not what the machine *costs*—what it *does*.

In making brick machinery we did not attempt to make a low-priced machine.

We figured on making brick machines with the highest asset making qualities and the lowest liability making points.

We realized that more brickmakers wanted *results*—that is, *profits*—than wanted low-first-cost and high-upkeep machines.

The interest on the difference in cost is nominal, when compared to other liability items.

Not that our machines are too costly. They are built to work, built to wear, built to *run*, day after day, without a breakdown.

Have these points in mind when you look at brick machinery.

New Haven Soft Mud Brick Machines

Turn Out More Brick, More Perfect Brick, Last Longer, Have Fewer Repairs, Use Less Power and Have Fewer Break Downs Than Any Other Soft Mud Brick Machine Made

The Eastern Machinery Company

New Haven, Conn.

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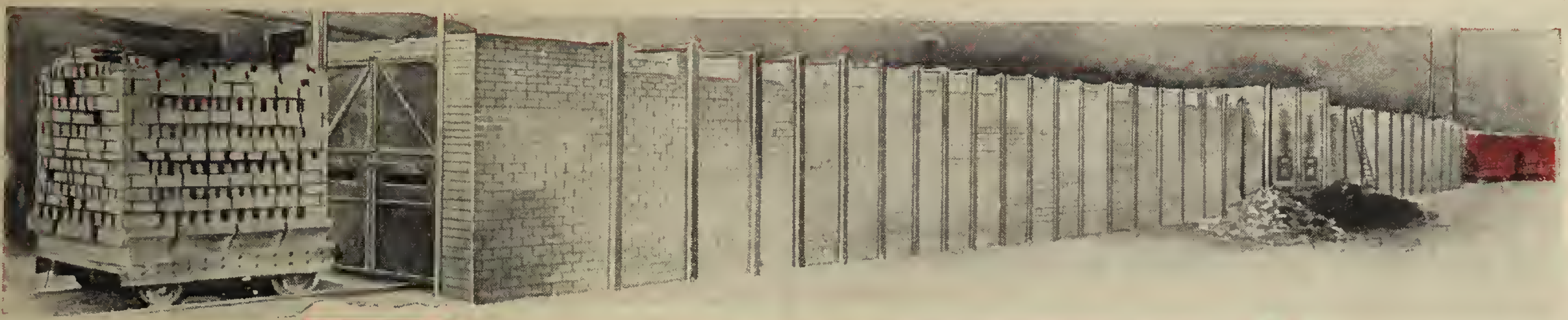

BRICK FROM DRIER ENTERING KILN — **BURNED AT 2500° F AND FINISHED IN 72 HOURS!** — **BRICK READY TO SHIP**

No Wasted Fuel—No Wasted Time—No Wasted Ware

This is no longer a dream of ceramists and those clay product manufacturers who have longed for real practical efficiency in burning—it's a reality—demonstrated in five years' every-day practice in the operation of the

Didier-March Continuous Tunnel Kiln

In one of the finest equipped brick plants in America where 300 tons of finished product is turned out every day.

The old expensive process of placing the dried ware in the kiln and then subjecting it to a gradually rising heat for a certain period and then drawing the heat from the kiln has given way to this modern method of placing the dried ware in a kiln divided into a series of chambers, each kept at a constant temperature.

THE WARE MOVES—THE HEAT DOES NOT CHANGE—NONE IS WASTED.

We will tell more about this wonderful process in succeeding issues—but to those interested in burning economy we will gladly send details.

No Better Brick Can Be Made

Didier-March Company, Perth Amboy, N. J.
Contractors — Engineers — Manufacturers of Refractories

Vol. XLVII, No. 11 Chicago December 7, 1915

WELLER-MADE

Read this—*then* Think and Act

Your profits depend on other things than the selling price of your product, the cost of your raw clay, cost of your fuel at the plant and the wages paid your men.

These items are all highly important, but you are losing money, and lots of it, if you do not dispense with hand labor wherever possible and change over out-of-date power-eating equipment.

Your clay should go from pit to dry-pans or disintegrators, thence into storage or weathering sheds, out of storage and into wet pans or pug mills without any hand labor, other than the simple operation of suitable levers.

If you are using any hand labor on this work you are losing money every day.

If you are shoveling one pound of coal over the sides of the cars by hand labor, or—

If you hand shovel one pound of coal between cars and kilns or boiler room floor, you are paying for hand labor ten times what it would cost to do the same work with a properly designed coal handling and storage system.

If you are wheeling your tile and other ware from drying room to kilns, it is costing you much more than the same work would cost if done by a simple flexible conveying system, which not only reduces cost of operation and loss in breakage, but greatly increases the speed of handling.

If you have machines that run all the time and cannot be shut down in such a way that they may be started at a moment's notice, you are burning up coal to develop power that is wasted.

Every pound of coal costs some small fraction of a dollar and in addition there is also the wear and tear to machinery and belts that can be saved by the right arrangement of your equipment.

Some of these points may seem too small to consider, but they are so important that large and successful corporations find it important enough to pay high class men large salaries to detect and eliminate these leaks.

If these big highly efficient plants have to watch these points, there is all the more reason why the smaller concern should thoroughly investigate these conditions and stop these leaks that in many cases mean the difference between

Poverty and Affluence

NOBODY KNOWS EVERYTHING, and we are no exception to this rule, but our many years of experience in handling many hundreds of similar and difficult problems has taught us a whole lot and we will gladly give you the benefit of this experience if it will help you to cut your cost of production and increase your capacity.

WE ARE NOT PHILANTHROPISTS. Our business is to design, manufacture, and sell machinery, and that is our main reason for putting this advertisement in front of you.

However, we are not selfish, nor do we essay the "dog in the manger" role. If we can assist you, or give you advice along any of the lines of our experience, we will be very glad to serve you to the very best of our ability, whether you send us an order at this time or not.

Write us today about the little leaks and troubles that you have been putting off from time to time, and figuring that you would get to it next week, next month, or this winter when you are shut-down.

Weller Manufacturing Company
Chicago

Trautwein
DRYERS

What Trautwein Service Means--

As manufacturers of Dryers and Dryer Equipment we are prepared to study the conditions at your plant—to make a commercial test of your clay to determine what method of drying will best suit your needs—

We have no single set design or ideas to force upon you.

Also—as Engineers we have gained an enviable reputation as Complete Plant Builders, and we can point with pride to our achievements.

Yet—we are also just as proud of the fact that our recommendations have kept many misguided enthusiasts from disastrous ventures when we showed them that they did not have a proposition that could be made a commercial success.

If That's The Kind of Service YOU Want—

Write us—tell us of any conditions in your plant that may be bothering you—or of any plans you have in mind. There will be no obligation—rather will it be a pleasure to study your problems.

Trautwein Dryer & Engineering Co.

Manufacturers of Drying Equipment
ENGINEERS—
417 South Dearborn St. CHICAGO, U. S. A.

Do Any Of Your Kilns Look Like This?

There's One Safe Way to prevent this condition—one sure way to save that big item of "kiln repairs" that you have been charging up each year—adopt

The Smith Steel Encased Kiln

We have facts and figures to prove what savings we have made for others—why not let us send them to you?

Claude Smith Company
Kiln Builders
Plymouth Building, Chicago, U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD

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Our New Advertisers

In every issue of "Brick and Clay Record" you will find from one to a half dozen new advertisers whose products our Service Department considers especially adapted to the needs of our readers. We commend these as well as those whose names are already familiar to you, as worthy of your very earnest consideration.

You can be sure that you will never see any product advertised in these columns unless we are first satisfied as to the high character of the advertiser, and also as to the dependability of the product advertised.

Isn't that sufficient reason why you should not hesitate to write those who are in position to help you cut your costs, make your plant more efficient, and turn out a better product?

A product that is not good enough to advertise is not good enough for you to use.

Standards of Practice for Business Papers

1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves. and then to strive in every legitimate way to promote that function.

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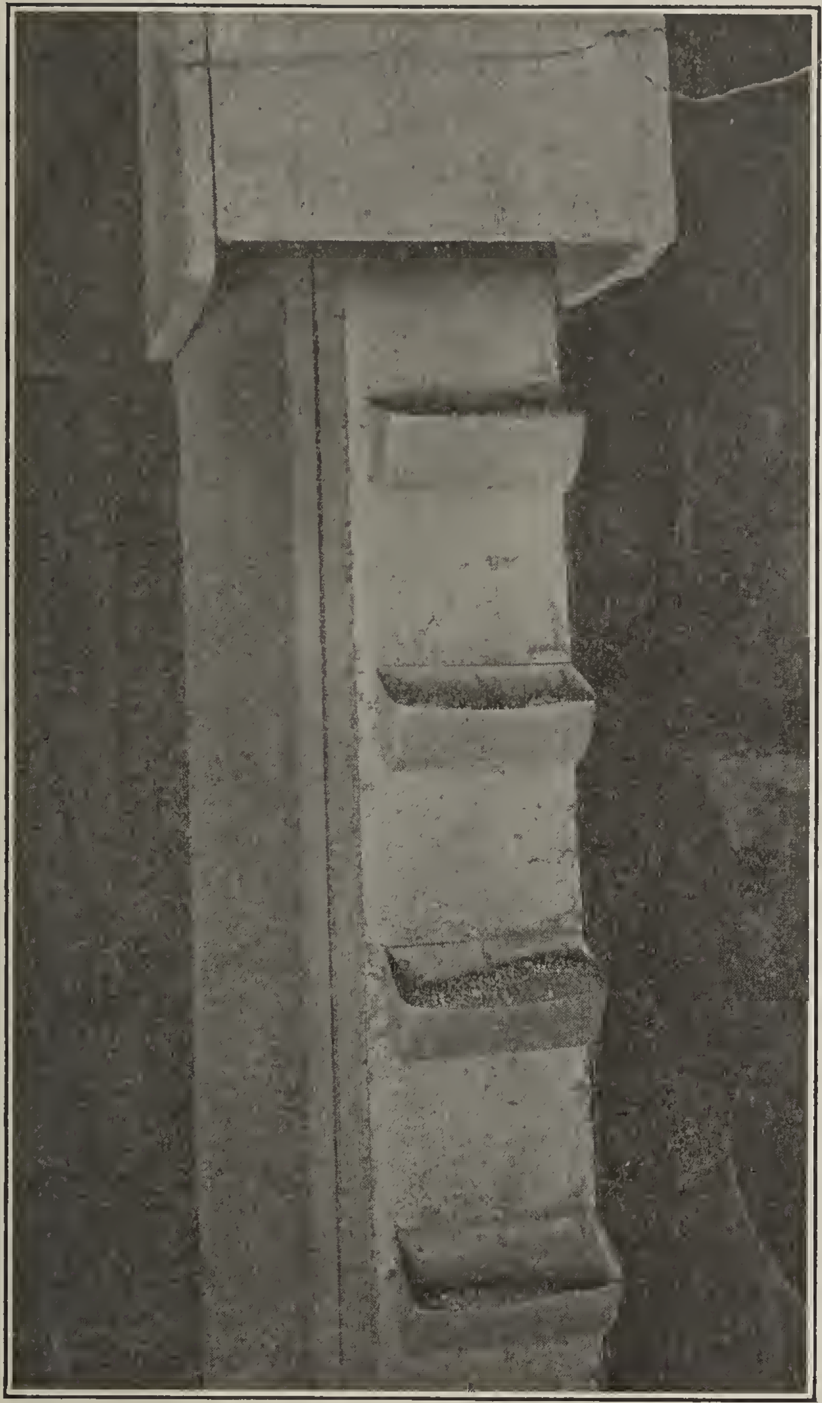

Sends us the above photograph and says:

"The LEVIATHAN Elevator Belt featured in this picture worked continuously in our plant, elevating hard shale, for more than ten years. Ship us another one, length 74 feet, width 12 inches."

Couldn't you use some belt that would render similar performances? There is only one kind that will do this, and its name is

LEVIATHAN

Sizes from 1 in. to 38 in. in stock, subject to immediate shipment

MAIN BELTING COMPANY

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Philadelphia	**New York**	**Chicago**
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Main Belting Co. of Canada, Ltd.
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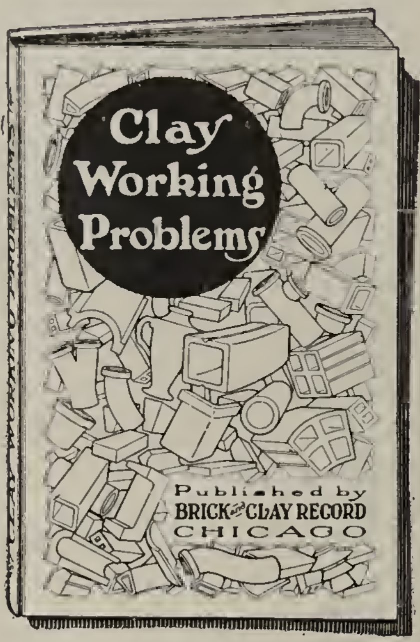

Cloth bound, 184 pages 5x7.........$1.50

IN TWO YEARS more than six hundred clayworkers have submitted their manufacturing problems to the Questions and Answers Department of "Brick and Clay Record." A careful selection has produced one hundred and one that were of general interest and of general value.

These have been edited and are published, together with solutions given by the best authorities in the various branches of the industry.

The book which contains them is called "Clayworking Problems" and is attractively bound in cloth, and indexed as to subjects.

It promises to be the "book of the year" in the burned clay industry.

The price ($1.50) is insignificant, when the value of the work is considered.

The book will be sent, postpaid, on receipt of price.

Any book on this list will be sent postpaid on receipt of price. No book will be sent out on approval.

How to Analyze Clay (Ashby)	$1.00
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Manufacture of Roofing Tile (English Edition)	$1.00
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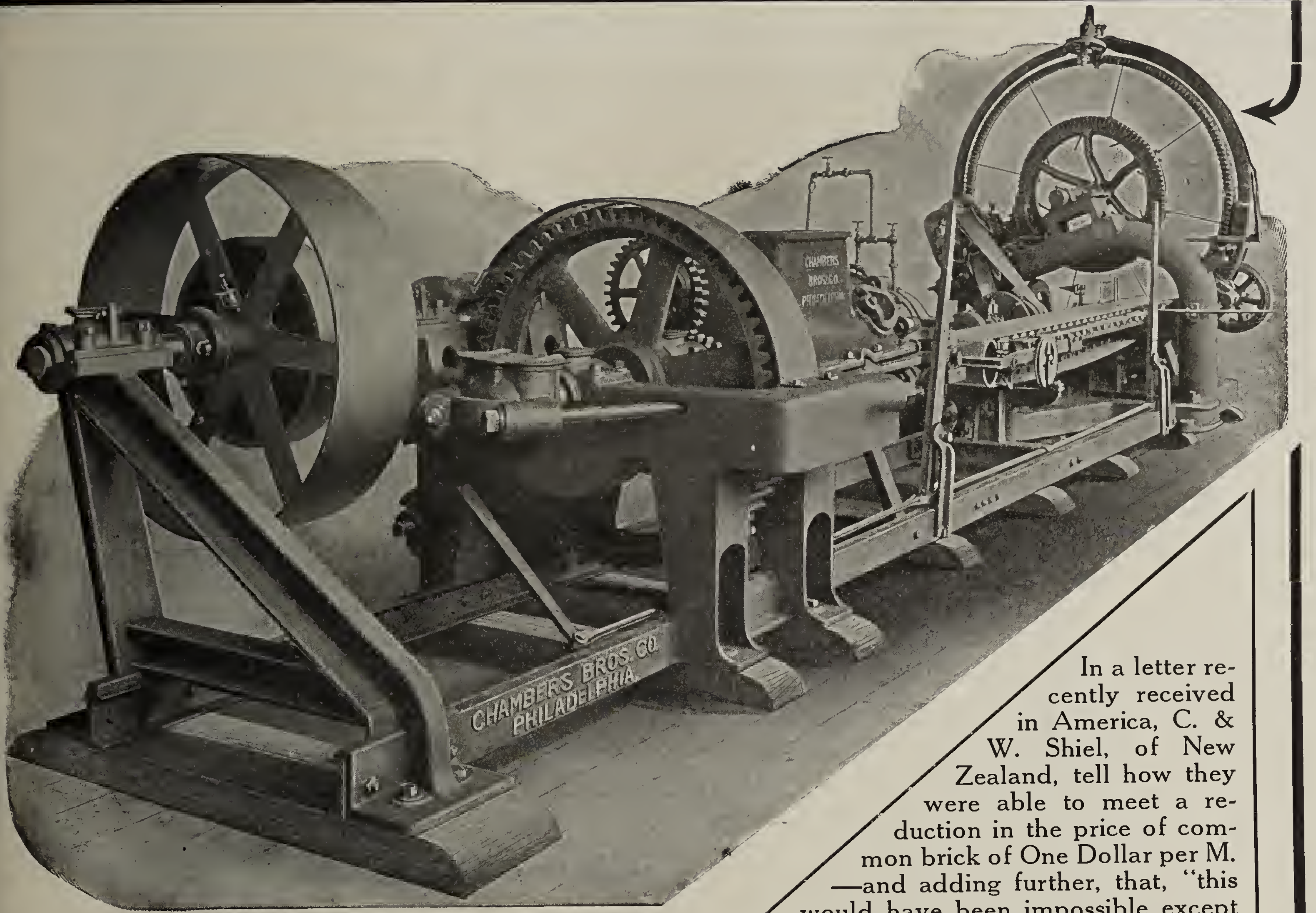
Address All Inquiries to

Brick and Clay Record's Book Department

445 Plymouth Court, Chicago, U. S. A.

You Can Get Maximum Capacity With the Chambers No. 10 Auger Machine



In a letter recently received in America, C. & W. Shiel, of New Zealand, tell how they were able to meet a reduction in the price of common brick of One Dollar per M. —and adding further, that, "this would have been impossible except for the efficient equipment we had installed, including Chambers Brothers Brick Machinery."

READ THIS!

C. & W. Shiel of New Zealand bought their first Chambers machine, our No. 10 Auger Machine with End Cutter, several years ago—then last year one of the firm journeyed to Philadelphia and placed an order for additional Chambers equipment—just recently another order has been received from them for another No. 10 Auger Machine.

This is, of course, gratifying evidence of the worth of Chambers Machines—but it's not so exceptional with us—we study the needs of those who place their confidence in us—we sell them such equipment as we are sure will give them MAXIMUM CAPACITY—that's why we keep our trade.

ISN'T IT WORTH SOMETHING TO YOU TO HAVE SUCH CONFIDENCE IN THOSE WHO SERVE YOU?

We'll talk matters over with you anywhere—any time.

CHAMBERS BROTHERS CO., Philadelphia, Pa.

SAY I SAW IT IN
BRICK AND CLAY RECORD

Another Plant Using Brown Pyrometers

Recording Instruments in Office.

View of Kilns.

Indicating Instruments in Business House.

The Metropolitan Paving Brick Co., Canton, Ohio, has equipped their Imperial Plant with Brown High Resistance Pyrometers. Indicating instruments inform the burners of the exact temperature at each end of the fifteen rectangular kilns, while recording instruments in the Superintendent's office make a record of the temperature, day and night. Brown Pyrometers are making good at hundreds of plants and the list is constantly growing. Why not give them a chance at yours?

Our 64-page catalogue is sent for the asking.

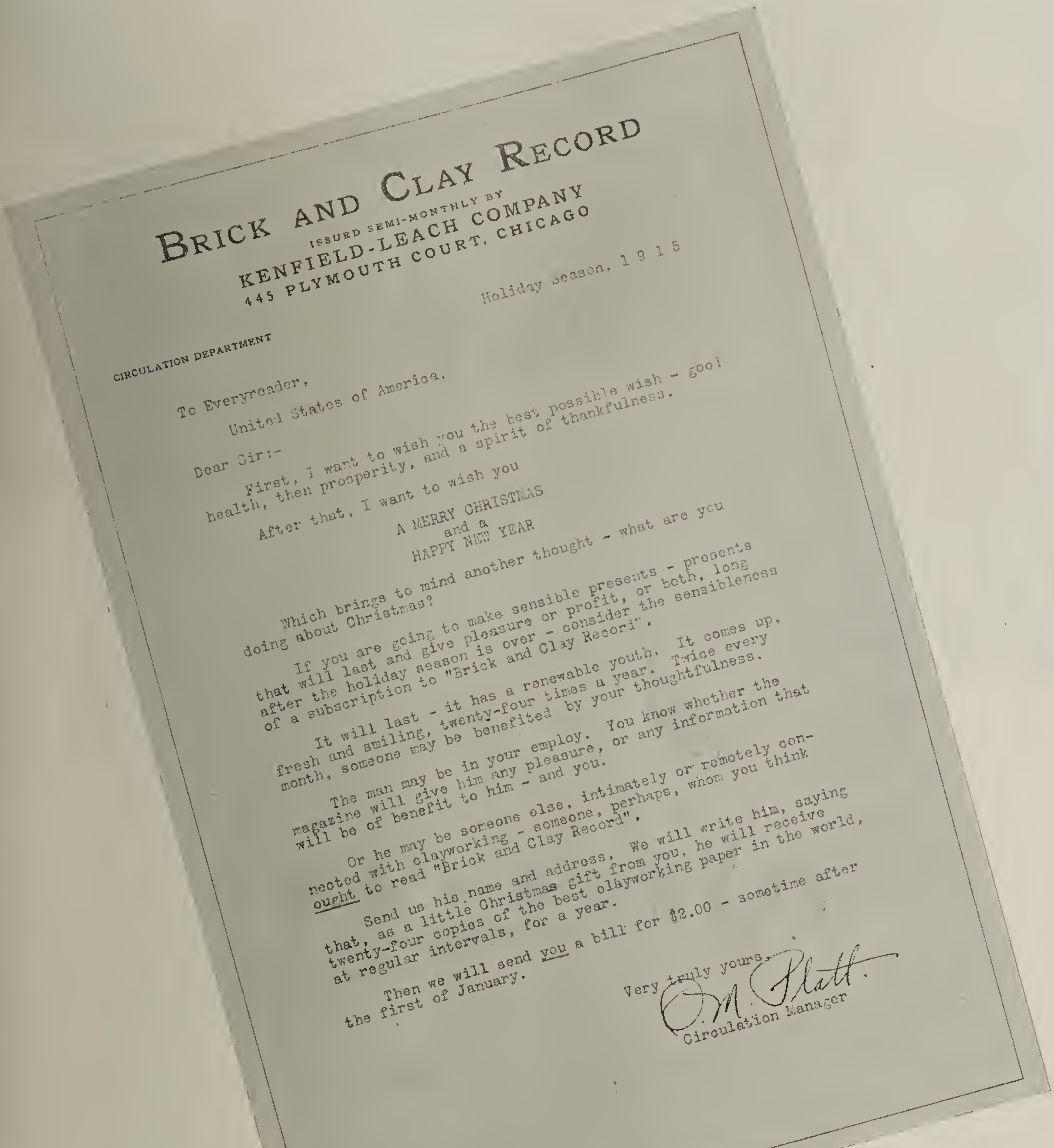
THE BROWN INSTRUMENT CO.

(ESTABLISHED 1860)

PHILADELPHIA, PA.

NEW YORK PITTSBURGH CHICAGO

SAY I SAW IT IN BRICK AND CLAY RECORD



BRICK AND CLAY RECORD
ISSUED SEMI-MONTHLY BY
KENFIELD-LEACH COMPANY
445 PLYMOUTH COURT, CHICAGO

CIRCULATION DEPARTMENT

Holiday Season, 1 9 1 5

To Everyreader,
United States of America.

Dear Sir:-

First, I want to wish you the best possible wish - good health, then prosperity, and a spirit of thankfulness.

After that, I want to wish you

A MERRY CHRISTMAS
and a
HAPPY NEW YEAR

Which brings to mind another thought - what are you doing about Christmas?

If you are going to make sensible presents - presents that will last and give pleasure or profit, or both, long after the holiday season is over - consider the sensibleness of a subscription to "Brick and Clay Record".

It will last - it has a renewable youth. It comes up, fresh and smiling, twenty-four times a year. Twice every month, someone may be benefited by your thoughtfulness.

The man may be in your employ. You know whether the magazine will give him any pleasure, or any information that will be of benefit to him - and you.

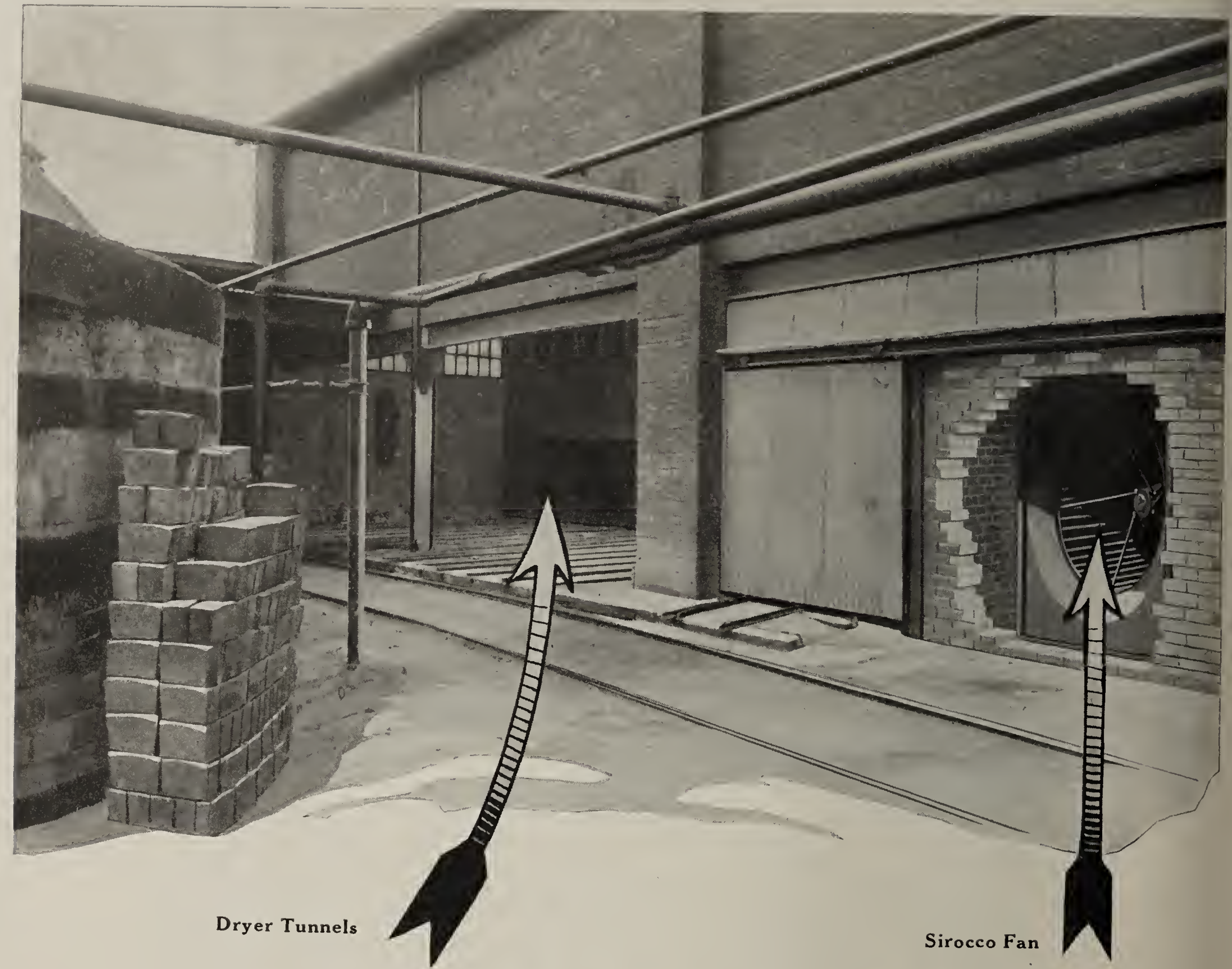
Or he may be someone else, intimately or remotely connected with clayworking - someone, perhaps, whom you think ought to read "Brick and Clay Record".

Send us his name and address. We will write him, saying that, as a little Christmas gift from you, he will receive twenty-four copies of the best clayworking paper in the world, at regular intervals, for a year.

Then we will send you a bill for $2.00 - sometime after the first of January.

Very truly yours,
O. M. Platt.
Circulation Manager

SAY I SAW IT IN BRICK AND CLAY RECORD



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TRADE MARK.

Waste Heat Systems take a wasted element and turn it into a PRODUCTIVE ELEMENT

You might just as well mix up a batch of clay and only use half of it and throw the rest away as to burn fuel to generate heat for burning brick and not make use of the heat from the cooling kilns. The heat from the cooling kilns is just as good for drying as any other heat.

All you need to do is to handle that waste heat in the most economical way, same as the Ashland Fire Brick Co., of Ashland, Ky., are doing—they use a "Sirocco" Waste Heat System—the above illustration shows part of their plant.

Our Brick Engineering Department helped them in the selection of the proper arrangement of "Sirocco" System—we'll do the same for you. Write us about a "Sirocco" System for your plant.

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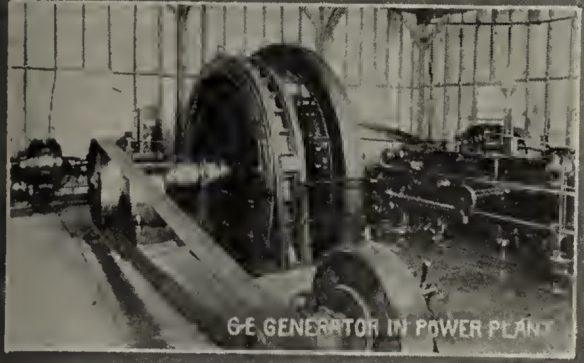
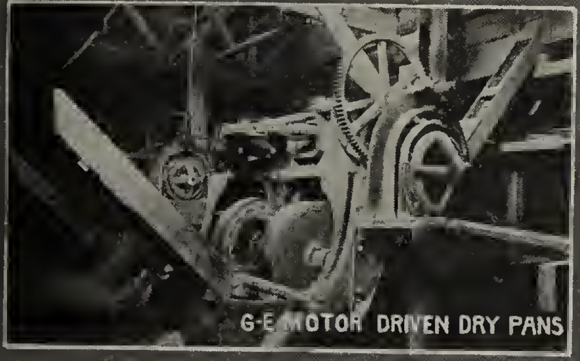
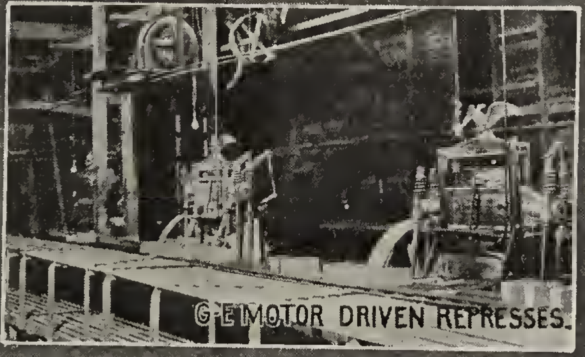
AMERICAN BLOWER COMPANY
DETROIT, MICHIGAN, U.S.A.
CANADIAN SIROCCO COMPANY, LIMITED, Windsor, Ontario, Manufacturers for Canada

SAY "I SAW IT IN BRICK AND CLAY RECORD"







Increasing Output and Reducing Power Cost

G-E motor drive eliminates line shaft friction, reduces maintenance cost, runs each machine at its maximum productive speed—and consumes no power when machine is not running.

Brick plants all over the country have installed G-E Motors. Bulletin No. 4929-A describes some of them. A copy will be sent you if you ask for it.

This
trade-mark
the guarantee of
excellence on
Goods Electrical

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Birmingham, Ala.
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Buffalo, N. Y.
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Charlotte, N. C.
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Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Dayton, Ohio
Denver, Colo.
Des Moines, Iowa
Duluth, Minn.
Elmira, N. Y.
Erie, Pa.
Fort Wayne, Ind.
Hartford, Conn.
Indianapolis, Ind.
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Joplin, Mo.
Kansas City, Mo.
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Louisville, Ky.
Memphis, Tenn.
Milwaukee, Wis.
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Nashville, Tenn.
New Haven, Conn.
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SAY "I SAW IT IN" BRICK AND CLAY RECORD

One Hundred Years Ago

Brick were moulded by hand, and the clay was dug by hand with pick and shovel.

Time and progress has eliminated brick making by hand and the latest improved machinery is now turning out hundreds of thousands of brick daily, where they were turned out only by the dozens by the hand method.

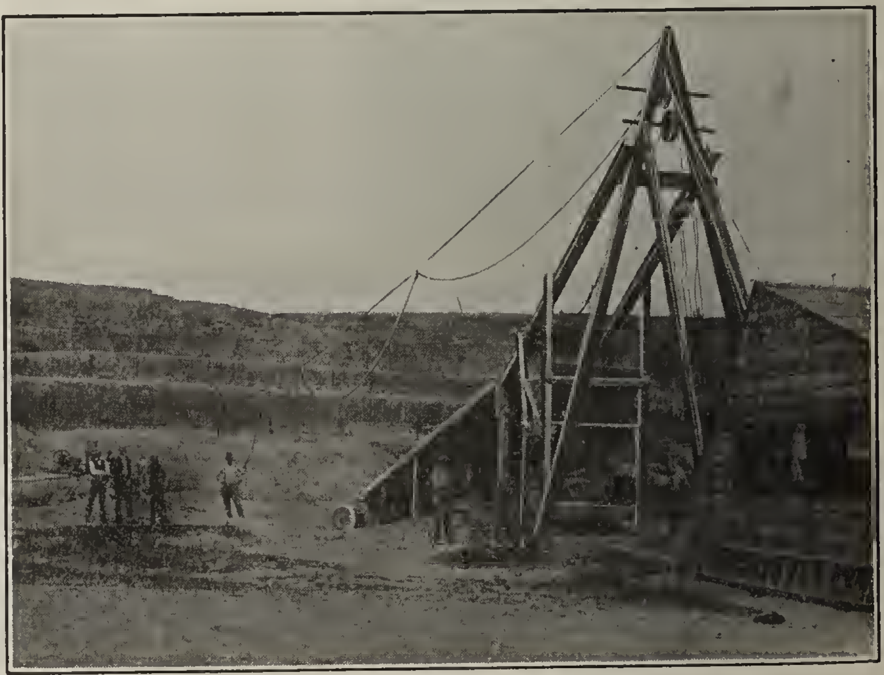
Did you ever stop to think that the most important feature of brickmaking is digging your clay? Thousands of dollars are wasted yearly in your clay pit.

Hundreds of brickmakers are in the same old rut of our forefathers—"DIGGING CLAY BY HAND".

As the moulding machines eliminated the moulding by hand, modern machinery is eliminating the digging of clay by hand.

NOW is the time to investigate modern methods of digging your clay, and your one best bet is

THE SCHOFIELD-BURKETT EXCAVATOR



It saves your labor, saves your stock, saves your time, and first, last and all the time SAVES YOU MONEY.

Every machine sold under an absolute guarantee.

Write today for our No. 10 catalog.

Our Engineers are at your service.

SCHOFIELD-BURKETT CONSTRUCTION CO.
Office and Works, Macon, Georgia

SAY I SAW IT IN BRICK AND CLAY RECORD

BRICK and CLAY RECORD

A Semi-Monthly Record of the World's Progress in Clay-working

* * *

Published on the First and Third Tuesdays in Each Month by the

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

IN THE JUDGMENT of men who are informed as to the conditions of the face-brick business—that is, the business of manufacturing face-brick—the supply of this material greatly exceeds the demand.

This is nothing new. The oldest inhabitant in this field of clayworking cannot remember a time when there was anything that could rightfully be called a general shortage.

On the other hand, everyone can recall many seasons when the yards were overstocked, with a resultant "easing up" of prices.

Many individual, and some co-operative attempts to extend the use of face-brick have been made. Some have been mildly successful—many have not. Some have been harmful.

The advertising of "Tapestry" brick started more men thinking about making rough-surfaced face-brick than it started thinking of using them.

And many of those whom it did start in the way of thinking of using them, would have used face-brick anyway.

In the meantime, a new and widely extended manufacturing interest was created, and the volume of production was increased.

Today, the problem of distributing—of getting rid of—the face-brick that are being made is insistent and vital.

Too Many Opinions

So many amateur lawyers have added their opinions to those given by professionals, that few know how far anyone can go in the way of regulating production, or prices, or sales-ethics, without being in danger of indictment.

So many decisions have been rendered in courts of law—decisions that define the limitations of business, in its effort to bring sanity to bear upon seemingly insane conditions—that every turn presents a new obstacle, and there are a hundred things that a man cannot legally do, to every one that he can do, and be reasonably safe from a jail term.

So the River of Doubt runs, dark, swift, mysterious, between every group of business men that meet to discuss the future of their industry, and the obvious reforms that are necessary to put that industry upon a paying basis.

And, since the things that cannot be done are so many, and the things that can be done so few, would it not be well to explore that Land of Can Not, and, perhaps, locate a gold-mine?

Uncle Sam's Lead

The Interstate Commerce Commission has ruled that the railroads can not give one shipper a better rate than is given other shippers of the same commodity, shipping to and from competing points.

Rebates—which are another way of giving a lower rate—are illegal. The shipper who accepts one, or who, being given a preferential rate, uses that rate, is held equally liable to prosecution with the railroad.

Here we find something that cannot be done—a "can not" that bears the stamp of the government and upon which there is no division of opinion—amateur or professional.

The government has fixed a certain price for a certain performance—the carrying of a manufactured product to its markets. The price is public—the tariffs are printed.

This freight carrying charge is the only factor in the price the consumer pays for his face-brick that is not subject to fluctuation.

Upon it—and legally, can be built a great price reform.

If a manufacturer of face-brick were to refuse to ship his product to any point where the amount of freight it would carry would be as great as his net producing cost, he would be taking a long step toward the solution of the problem.

If his resolution were greater, and he were to refuse to ship to any point that carried a freight charge of more than Two Dollars a ton, he would make history.

If two, or four, or six, or twenty manufacturers of face-brick agreed to do the same thing, no indictment should be found against them. But immediately, and without any further effort on their part, competition would be defined, production limited, prices made better. The "ultimate consumer" would be given better value for his money.

There would be just as many face-brick used in Chicago, if no "Harvards" were brought there from New Hampshire, nor "Raindrops" from New Jersey.

There would be just as many face-brick used in New York City and New England if no Ohio brick ever crossed the Hudson river.

Every car of face-brick shipped to a point which carries a high freight rate, affects the selling price of face-brick made nearer to that point. And the effect is not, as has been claimed, beneficial.

The limit of its usefulness is giving the consumer something that is "different" for the same price.

In ninety-nine out of a hundred cases, face-brick produced within a dollar-a-ton radius of any city is plenty good enough to face the finest building anyone wants to erect.

The One Sure Figure There need be no "gentlemen's agreement." Refusal to ship beyond a given freight distance can be made a part of a contract, and the breaking of that contract a ground for a damage suit. The proof of breach would be easy—a certain brick reached a certain point outside of the proscribed freight rate radius.

No doubt you will consult your lawyer. Do not forget to tell him that you believe you are justified in refusing to ship your material beyond a certain distance, on account of the liability of damage in transit, and the consequent dissatisfaction of the dealer or builder who receives it.

Do not forget to tell him that you believe shipping to a point where the freight rate is out of proportion to the production cost, subjects the consumer to the necessity of paying a price that is not warranted by the intrinsic value of the material he receives.

Tell him, too, that this artificial valuation affects the extended use of face-brick, and invites the substitution of cheaper and less economical facing materials.

Show him that a movement like this is not made for the purpose of putting up the price that the consumer is asked to pay for your brick, but to stop the economic waste that accompanies high carrying charges—charges that add nothing to the real value of the material, nor to its ability to properly serve the purpose for which it is sold.

Put your thumb down on the one and only unchanging factor in the entire sum wherein labor and material is translated into dollars and cents.

Every manufacturer is tagged with that figure. He may not tell the exact truth as to his cost—for he may not know it; nor as to his selling price, for he may have too many of those to recall.

But you know, and he knows, his freight rate to all important markets. On that point you can agree, if on nothing else.

Begin on that, and eventually you will have built a bridge across the River of Doubt, and crossing it, old General Prosperity will invade the world of face-brick.

Later on, that invasion may come to other worlds of clayworking, many of which are almost neutral—from a profit standpoint.

Clayworking Problems

One Hundred and One Questions, Asked by Owners and Superintendents of Claywork-ing Plants, and Answered by the Country's Foremost Experts in the Several Branches of the Industry. A Cloth-bound Book, 184 Pages, and Illustrated. Price $1.50, postpaid.

For Sale Thru "Brick and Clay Record's" Book Department

Resurfacing With Brick on a Macadam Base

An Experiment in Road Building that Offers An Economical Method of Repairing an Old and Badly Worn Street

EDITOR'S NOTE: Two experiments, in which paving-brick is being used in widely different ways, are treated in this paper. Both mark a new era in street and road improvement, and both have been startlingly successful. One is the use of an old macadam pavement as a base, while the other does away with the time-honored sand cushion.

By W. H. Zelt

One of Cleveland's New Brick Paved Streets, in Which the Old Macadam Surface Was Leveled Off and Covered with Slag, Upon Which Was Laid an Armor of Vitrified Brick

IT'S THE TALK of the town, the new brick pavement on Cedar Glen Road, Cleveland, Ohio, especially with that portion of the population that uses its automobiles to go downtown every day. The reason for the comment is obvious to those who were familiar with the condition of the road before it was resurfaced, which operation has just been completed.

This road formerly was a macadam thorofare, the original improvement being Telford macadam, laid down with great care and according to the most approved specifications. It was designed to be not only durable, but also to reflect an air of luxury, for it runs thru one of the most artistocratic residence sections in Ohio, from Overlook Road and Euclid Boulevard to the Cleveland city line.

The reasons why this road deteriorated, and rendered necessary either an entire resurfacing or a rebuilding of the structure itself are many, but a few will suffice here. Primarily, the greater part of the distance is a hill of varying grade, where the test of traction is continuous in moist weather. With the original macadam the heavy grade made winter conditions a menace to vehicles, and, in the words of one of the large allotment developers in the vicinity: "The chains of automobiles simply chopped the surface to pieces."

Again, the traffic is made up largely of motor vehicles, and this traffic is unusually heavy for a residence district. There are two reasons for this large volume of traffic. The road in question is the main gateway to the rapidly growing Shaker Heights and Cleveland Heights sections of the "East End" of town, and, as said before, nearly all residents use the road to reach the downtown sections in their own cars. Again, heavy trucking is constant, because of the widespread building operations in the vicinity, all finding ingress to and egress from the Heights by this route.

It did not take long before the daily scrutiny of the thousands of prosperous citizens of the section was called to the condition of their main road, virtually destroyed, with the heavy rocks of the Telford base projecting. Consideration of the situation brought out the consensus of opinion that repair was out of the question. Thoro resurfacing was deemed necessary, and the choice of materials resulted in brick.

The projecting portions of the base were removed by hand sledging and redistributed. In some cases, the broken chunks of stone were four inches in diameter. After the irregularities had ben removed, the resulting surface was given a coating of slag, of about the size to pass thru two-inch screens, but to be retained by a one-inch screen. Smaller granulated slag was used to fill in the interstices. The whole was then sprinkled and rolled to an even surface.

Upon this was placed a sand cushion, one and one-half inches in thickness, which was given the customary treatment of rolling, striking off to grade, and rerolling. Hillside block was used for the entire stretch. The pavement has had a year's test, and traffic has naturally increased, estimates placing the number of vehicles at three thousand a day, which is conservative.

The results have been such as to point out the advisability of this type of reconstruction. One feature that was deemed worthy of especial consideration was that the base should be thoroly compact before the brick were laid. This was particularly difficult to do here, on account of the extreme roughness of the old macadam base and the necessarily varying thickness of the slag course.

The experiment is of significance in localities where a large amount of macadam has been laid, constituting an investment that citizens are loathe to see lost. Much of this is maintained at a cost that would make re-surfacing with brick an economy. This is especially true on the heavier grades, which are abundant in northern Ohio.

Engineer Ett Smith, of Mahoning county, Ohio, is one of the pioneers in this form of improvement, especially in respect to worn out rural roads; in the Cedar Glen instance, however, the conditions were more trying than would be generally met with—hence it was an experiment.

The successful outcome of that experiment not only justifies the faith that the Mahoning county engineer had, but of the adherents to brick—the best of all paving materials.

RIGID TYPE OF BRICK PAVEMENT

The attention of highway engineers is centering, however, upon the rigid type of brick pavements introduced in 1915, in State-Aid highway work in Illinois, by W. T. Blackburn, C. E., consulting engineer of the Dunn Wire-Cut Lug Brick Company, of Conneaut, Ohio. The methods employed give true monolithic construction.

Prior to the development of the new type of construction, the term "monolithic brick pavement" was a misnomer, as it applied only to the grouted brick surfacing. Brick pavements constructed according to standard specifications consist of a concrete foundation, a sand cushion and the brick surfacing bonded by a cement-grout filler. Such pavement comprises two monoliths, or beams, separated by one-and-one-half inches of sand, so that it is a misuse of words to describe the pavement as a whole as a monolith.

The function of the sand cushion is to compensate for the inequalities of the surface of the concrete foundation and provide a uniform bearing for the brick. In the early days of this type of construction, insufficient attention was given to trueing the surface of the foundation, and as a consequence two inches of sand was specified for a cushion, that depth of sand being required to bring the bearing surface to a true cross section in exact conformity with the surface lines of the finished pavement.

Levelling the Old Macadam Base

Later, when it was found desirable and possible to bring the surface of the concrete foundation to approximately true levels, the standard specifications were revised and the maximum depth of the sand cushion was reduced to one-and-one-half inches.

An even bearing surface for the brick was recognized as essential, and for many years the sand cushion was regarded as the only feasible means of attaining this important constructional end.

But, notwithstanding the exercise of the utmost care in applying specifications, defects sometimes developed in brick pavements laid in sections in which the seasons caused extreme, and ofttimes sudden fluctuations in temperature, resulting in harmful expansion and contraction.

Laying and Rolling the Brick

Study, observation, investigation and tests led to the conclusion that most of the defects in brick pavements were due to the sand cushion; but until the experiments conducted by Mr. Blackburn eventuated in the new type of construction introduced by him in Illinois, no satisfactory substitute for the sand cushion was discovered.

The sand cushion was objectionable also on account of the hazards it thrust upon contractors. Rain falling upon brick before they were rolled necessitated taking up the brick and recompacting the sand cushion, as otherwise the sand would be forced up into the joints between the brick—thereby reducing the depth of the bonding interstices and weakening the pavement.

Tests also demonstrated that variations in the moisture content of the sand cushion caused unequal compressive areas, so that after drying, the sand cushion varied in depth, leaving depressed areas here and there, which afforded no direct support to the brick surfacing. There was also a tendency of the sand cushion to shift away from the crown of the pavement in obedience to the impulse given by the traffic jar and the slope of the grade. In either case the air spaces under the brick caused the pavement to rumble under traffic, and they assured depressed areas in the surfacing itself, in the event of the breaking of the bond between the brick.

The new type of construction eliminates weather hazards; it insures against consequential defects in a pavement attributable to the use of a sand cushion; it overcomes the rumbling nuisance, and it does away with the curbing or edging on highways.

The term "rigid" is applied to the new construction, because all sections of the pavement are joined in a solid beam from surface to sub-base.

The superior strength of the single beam as compared with the strength of the double beam is easily computed, as the strength of a beam is as the square of its depth.

Association Notes

The first annual meeting of the New York State Ceramics Products Manufacturers' Association has been arranged to take place at Syracuse, N. Y., December 17 and 18, 1915. Headquarters will be at the Onondaga Hotel. Sessions will be held on the morning and afternoon of the 17th, and on the morning of the 18th, and an informal dinner and smoker will be arranged for the evening of the 17th.

The matters of business to come before the association at this first meeting are as follows: 1. To adopt rules for the association; 2. To elect officers for 1916; 3. To decide on a policy for the association; 4. To decide whether or not an Industrial Course at the State School of Ceramics is wanted for the last week in January.

A program will also be arranged, including addresses and papers on subjects of interest to the association members. Due to the present incomplete organization it is impossible to announce in advance the titles of the papers or the names of those who will read them.

M. E. Gregory, of Corning, N. Y., is president of the association, and E. T. Montgomery, of Alfred, secretary.

The fourth annual meeting of the Chamber of Commerce of the United States will be held in Washington, D. C., February 8, 9 and 10, 1916. Among the other subjects that will be recommended by this convention will be the upbuilding of a merchant marine, a "national budget" and a permanent, nonpartisan tariff commission. In a call issued to the business press of the country, the president of the Chamber, John H. Fahey, says:

"Let me say to business men everywhere the National Chamber is your organization. It is fighting your battle. It is doing what you could never hope to do single-handed or through local organizations. It is contending for just what you want to see in this whole country—business stability, integrity, sanity, understanding. And it wants, and needs, and indeed must have the encouragement and support of every live, patriotic business man in the United States."

Extensive preparations are under way for the entertainment of members of the clayworking industry at the coming conventions in conjunction with the Complete Building Show, to be held in Cleveland, Ohio, February 16 to 26, 1916. The first step toward this end was taken November 26, when several representatives of brick manufacturing companies held a preliminary meeting at Schuster's. The consensus of opinion was that a general meeting be held at the offices of the Deckman-Duty Brick Company, on December 7, at which all nearby interests in the brickmaking industry should be present. At this meeting it is planned to make definite arrangements for the entertainment of the delegates to the National Brick Manufacturers' Association convention, as well as to the meetings of the American Ceramic Society.

The American Ceramic Society will hold its annual meeting at Cleveland, Ohio, February 21 to 24, 1916. The ballots that will have been cast for the election of officers will be opened and counted at one of the sessions, and the new officers will take their seats at the close of the meeting.

The Iowa State Drainage Association, of which H. M. Sparboe, of Webster City, Ia., is president, will hold its annual meeting and election of officers early in the year—probably some time in February. The secretary is M. F. P. Costelloe, and his address is care of the Iowa State University, at Ames.

It has practically been decided that the New Jersey Clay-Workers' Association will hold its annual meeting upon December 22 and 23, 1915, and at New Brunswick, N. J. The president and other officers will be elected.

The next annual meeting of the Western Paving Manufacturers' Association will be held in the Dwight Building, Kansas City, Mo., January 14 and 15, 1916. Officers will be elected to serve for the ensuing year.

The annual convention and good roads show of the American Road Builders' Association will be held at Pittsburgh, Pa., February 22 to 25, 1916.

The annual meeting of the National Terra Cotta Society will be held at the LaSalle Hotel, Chicago, December 10, 1915.

Coming Conventions

Dec. 7 and 8........Sand Lime Brick Association (Manufacturers)....................Republican House, Milwaukee, Wis.

Dec. 8, 9, 10........American Face Brick Association (Manufacturers)........Hotel Chamberlin, Fortress Monroe, Va.

Face Brick Dealers' Association of America, Hotel Chamberlain, Fortress Monroe, Va.

Dec. 10........National Terra Cotta Society, Hotel La Salle, Chicago, Ill.

Dec. 17 and 18........New York State Ceramics Products Manufacturers' Assn., Onondaga Hotel, Syracuse, N. Y.

Dec. 22 and 23........New Jersey Clay Workers' Assn., New Brunswick, N. J.

Jan. 14 and 15........Western Paving Brick Mfrs. Assn., Dwight Bldg., Kansas City, Mo.

Jan. 18, 19, 20........Canadian National Clay Products Association........King Edward Hotel, Toronto, Ont., Canada.

Jan. 27 and 28........Wisconsin Clay Manufacturers' Association........Milwaukee, Wis.

Feb. 3 and 4........Iowa State Clay Products Mfrs. Association,........Iowa State College, Ames, Iowa.

Feb. 8, 9, 10........Illinois Clay Products Association........Hotel Jefferson, Peoria, Ill.

Chamber of Commerce of the United States of America, Washington, D. C.

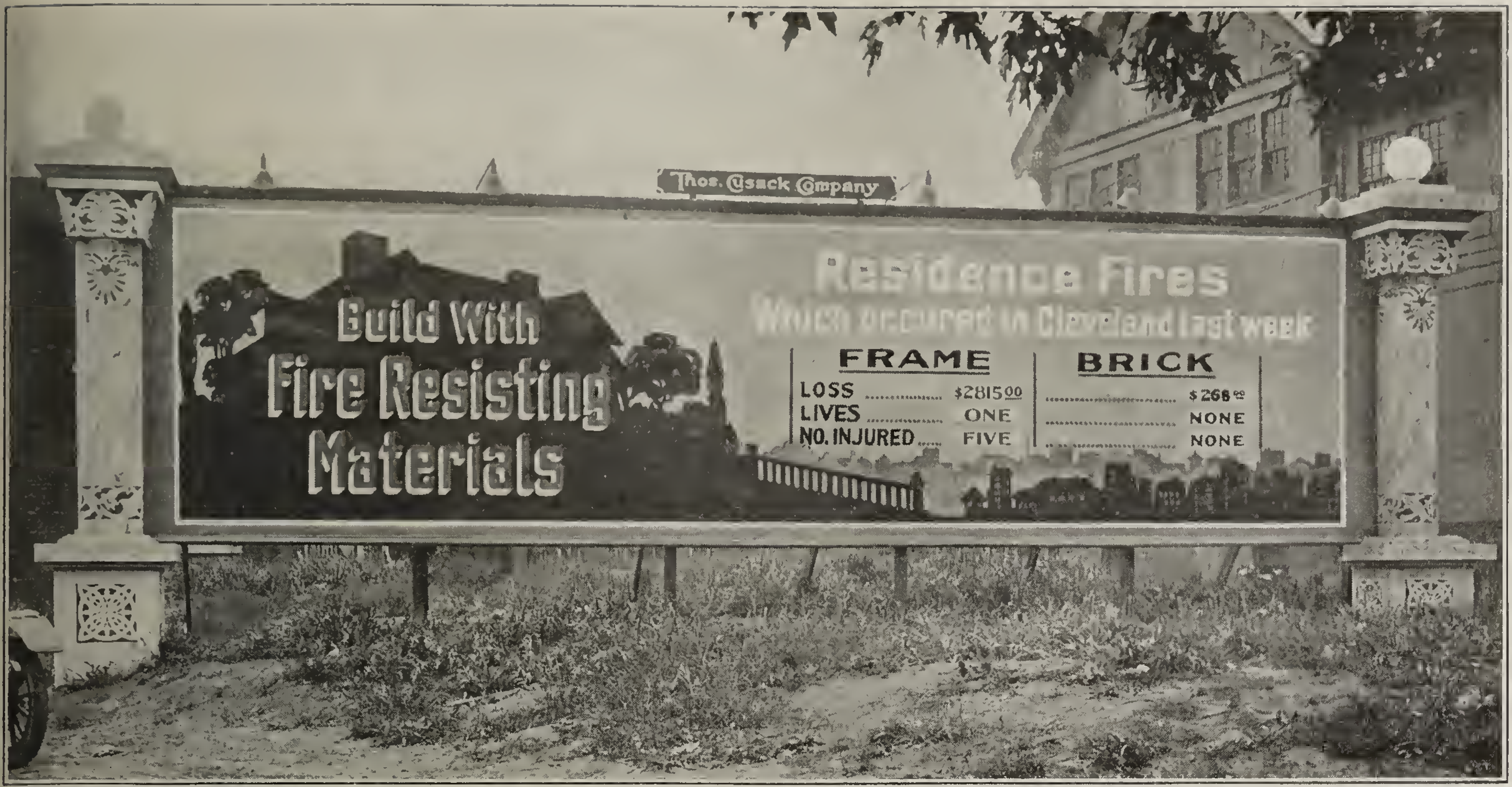
Feb. 17, 18, 19..........National Builders' Supply Association....................Hotel Statler, Cleveland, Ohio.

Feb. 21 to 24........American Ceramic Society, Cleveland, Ohio.

Feb. 21 to 26........National Brick Manufacturers' Association........Hotel Statler, Cleveland, Ohio.

Feb. 22 to 25........American Road Builders' Assn..............Pittsburgh, Pa.

Feb. 16 to 26........THE COMPLETE BUILDING SHOW ....The Coliseum, Cleveland, Ohio.



This Sign, Twelve by Fifty Feet, Painted in Colors and Illuminated at Night, Faces one of Cleveland's Busiest Thorofares

Working Eighteen Hours a Day for Safer Building

Outdoor Painted Display in Cleveland Fixes Attention on Local Fire Losses and Points Way to Safer Construction

EDITOR'S NOTE: Twelve building material firms have contributed to a fund that paid for the erection and maintenance of the sign shown in the above illustration. It has brought in so much new business that a movement is on foot to increase the number to ten, all to be erected during Nineteen Sixteen.

FROM TIME TO TIME, manufacturers and dealers in brick and hollow building tile have engaged in co-operative advertising campaigns which have promised good results. In some of these cases an extended use of the materials mentioned has come of this co-operative work—in others, it must be admitted, results have been negative—or so nearly so as to seemingly spell failure.

The most recent of these movements, and one that is pregnant with promise, is that symbolized by the illustration that accompanies this article. Best of all, it is one that can be conducted by small organizations, in every city, and without a great deal of expense.

The Cleveland (Ohio) branch of the Thos. Cusack Company, the largest outdoor advertising company in the world, originated the idea, which is the application of an already well known and effective advertising force to a psychological argument for fire-safe building materials.

Outdoor painted display, or painted bulletins are exclusively used, and, by virtue of arrangements made with the local fire department, figures are received at the Cleveland office of the Thos. Cusack Company every Sunday night, showing the fire-loss on all kinds of residential property in the city of Cleveland for the preceding week. These figures are painted into the sign early Monday morning, and in this way the public is constantly reminded of the danger resulting from frame construction. Better than that, the danger is shown as it affects Cleveland, and not being clouded by any extraneous facts or figures, it comes to Cleveland home-builders with tremendous force.

It tells what is happening to them—right there at home—and suggests what may happen at any time to the man who lives in a house built of the same kind of material that is used to make matches.

The total expense of placing the sign and of its maintenance is borne by twelve concerns, all engaged in the sale of fire-safe building materials. All of these concerns are catering to Cleveland builders. The money they spend is making a better and safer city and, at the same time, increasing the amount of their sales. The individual expense is very small, and is considered by every member as one of the best advertising investments he has ever made.

Robert C. Mitchell, salesmanager of the Farr Brick Company says: "That bulletin has been in place but a short time. Every week brings a new strength to the demand for fire-safe building materials. The men back of this movement are so well pleased with the results that they contemplate erecting as many as ten of these bulletins in 1916, placing them in the most prominent positions in the city of Cleveland. We have already received a number of reports of conversions from frame to brick and hollow-tile, that can be traced directly to the changing figures on this bulletin." To Mr. Mitchell, by the way, must be given the credit for grasping the possibilities of this form of publicity, and of getting action upon it from his associates in the building material field of America's sixth city.

FIRE DEPARTMENT CO-OPERATION

The fire department of any city will co-operate in a movement of this kind, fire prevention being an important part of the function of departments of this character. Local boards of Fire Underwriters and local insurance companies are similarly willing to support movements that decrease the fire hazard. Not until Cleveland paved the way, however, has outdoor painted display been used extensively for this purpose.

The flexibility and elasticity of this sort of advertising is truly wonderful. It adds the element of change that incites attention and makes those who have once seen it, grow to look for the latest developments in the fire-loss figures. It combines the element of stability of purpose with that up-to-date information that makes a deeper impression than any advertising medium which retains its original form, month in and month out.

ITS ADOPTION IN OTHER CITIES

What Cleveland has so successfully done, may be followed without fear of failure in other cities. Painted bulletins of generous size are great opinion molders. Outdoor painted display is too widely used to need any exposition here. Bulletins such as that which is illustrated here are sure "eye catchers." They are individually painted by hand, and eighteen to twenty colors may be used. The size is twelve feet high by twenty-five to fifty feet in length.

Under the system whereby these bulletins are erected, each one is placed just where the advertiser thinks it will do him the most good. Accurate figures are made of the passing traffic, both as to numbers, and the class of people who pass. Each bulletin has individuality and freedom from competition with other advertising signs or bill-boards. It is irresistable in its compelling and thought-directing effect. Because of this choice of locations, it is possible to appeal to the classes or masses. It is placed where, in the opinion of experts, it will give the greatest advertising effect for the least expenditure of money.

These huge bulletins are on duty every day and night in the year. They do not cease their endeavors to interest prospective purchasers when the sun sinks in the West and the stars begin to blink upon an active city. They are brilliantly lit at twilight and a day's work, to them, is eighteen hours.

Their effect is cumulative. The home-builder finds his architect already convinced by the same argument that has led to the request that fire-safe materials be written into the specifications.

The outdoor painted display, with changing fire statistics, brings the "Build with Brick" campaign to the "steenth" power. It answers the question that has followed the "Build with Brick" signs all over the country—the question—"Why?"

Big Paving Brick Merger Impending

Within a few weeks, perhaps with the next issue of "Brick and Clay Record," details of one of the biggest brick mergers in recent years in Ohio will be announced. The new concern will be known as the Medal Paving Brick Company, and will be incorporated for $1,000,000. Some of the largest brick companies in the Buckeye state will be identified with the venture, among them being the Deckman-Duty Brick Company, of Cleveland; the Wooster Shale Brick Company, of Wooster, Ohio, and two others, one at Carrollton and another at Malvern, Ohio. Charles J. Deckman, of the Cleveland firm, is now working on the details. W. R. Barnhart, president of the Wooster concern, states extensive additions will be made to the plant at his city, and similar improvements probably will be made at other points.

A FIVE THOUSAND DOLLAR INVESTMENT THAT IS EARNING NEARLY FOUR THOUSAND DOLLARS A YEAR
This Motor Truck Cost $4,600. Insurance Policies and Other Incidentals Brought This Up to $5,000. The Weekly Expense, Including Wages, Storage, Repairs and a Liberal Depreciation Allowance, Is Less Than One Hundred Dollars. The Truck Earns from $150 to $200 Each Week—an Average Net Profit of $3,900 a Year

"Buying Well"

Actual Happenings in Clay Plants Where the "Economy of Buying Well" Is Convincingly Demonstrated

EDITOR'S NOTE: Both November issues of this magazine carried editorials urging the wisdom of buying well—paying enough to have a right to expect the best materials built into your machinery. We promised to keep on the subject until we were convinced that there was nothing more to be said. The stories that follow, and which are a few in many that have been received, are not fiction. Original letters in our office testify to the correctness of the statements made. These letters also contain names where the following stories contain blanks.

The Story of a Cutting Table That Was Built Like a Motor Car and Earned Its Right to Cost Considerable Money

One of the most interesting examples of "Buying Well" that has come to our attention happened in western Pennsylvania. The ——— Brick Company purchased a cutting table from the ——— Company (a manufacturer of clayworking machinery) for $800. This cutter had a capacity of approximately 8,000 face-brick per hour, and was sold with the understanding that this was its capacity.

"You Pay the Difference Between $400 and $4,000 for Appearance and Materials"

Soon after its installation, word was sent to the manufacturer that the machine was unsatisfactory. The manufacturer's factory superintendent went to the plant to see what the trouble was. He found that they were attempting to cut 10,000 brick per hour, and that consequently, the cutter was not giving satisfactory results.

He made straight for the headquarters of the plant owners. He met the assembled "powers" and explained the difficulty. Presently the head man drove up in a big Packard and got right into the argument. Being outnumbered, the machinery man was getting it "handed to him" pretty strong. When they found that, under the circumstances, they couldn't say much about the performance of the machine, they began to "knock" the finish of the cutter, and the materials of which it was made.

The machinery man, who is a good shop man, turned to the head "baller out" and said: "I notice, Mr. ———, that you drive a Packard—now a Ford would carry you just as far and just as fast as your Packard, so I take it that you pay the difference between $400 and $4,000 for *finish, and material, and appearance.* I also take it that you want us to furnish you with a cutter with Packard finish, materials and appearance, at a Ford price—think it over, can we do it?"

The brick man sat still for a few seconds, and then asked what it would cost to build a cutter with Packard material and finish—nickel-plate and all. The machinery man figured it out, and said $3,000 would be about right.

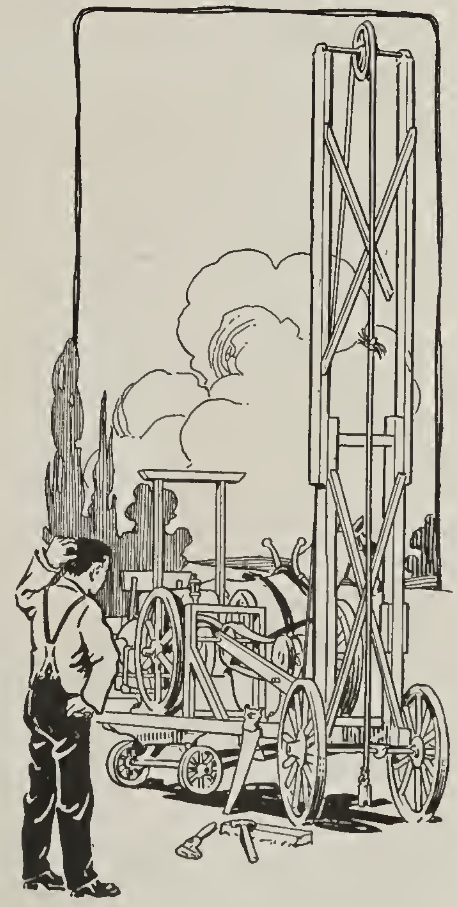
Four days later that brick concern placed an order, by wire, for a cutter at a cost not to exceed $3,000; they got it—nickel and all—steel thruout, Hyatt roller bearings, and everything else that could be made better by putting better workmanship and materials into it.

There was not more than $100 worth of unnecessary finish. The rest went into the machine.

Those who are in a position to know say that it has worked so well and needed so little attention, that the brick men who bought it are perfectly satisfied that they made a good investment.

A man who saw the machine as it left the shops said: "At last I am convinced that the brick machinery people can build machines that will stand all of the extraordinary wear to which brick machinery is subjected—that is, build the right machinery for the purpose—if the men who do the buying are willing to pay for what they get."

The Story of a Well Drill That Was Too Expensive to Keep Out of the Junk Pile



On another plant, a newly fledged superintendent recommended the purchase of a well-drill. Having had some experience with them, he recommended a type that had proved satisfactory in the past.

He was immediately over-ridden. The price of the drill that he recommended was too high. An assortment of parts—some new and some second-hand—were sent to the plant to be assembled.

The result was a cumbersome, troublesome affair. It took three times as long to drill a hole as it should have taken, and required an expert mechanic to keep it in repair. Finally it was sent to the junk heap.

Architects Compete on Small Brick House

AN ARCHITECTS' COMPETITION for a model residence, to cost not more than $3,000, and which is being conducted by the Complete Building Show, is expected to result in one of the best educational features of the big Cleveland exposition in February.

The Cleveland chapter of the American Institute of Architects, through its president, Abram Garfield, a son of the martyred president of the United States, will have charge of the contest.

In addition to bringing out a great number of suggestions in the designing of small houses, the contest will contribute one of the most interesting features of the show. The Cleveland Art Association, an organization of large membership, and which aims to exert an influence in beautifying the city, will produce the prize plan in the show. A small model of the prize house will be built by the association and the entire room arrangement will be worked out in full scale with decorations and furnishings complete.

Visitors at the Complete Building Show will see just how this model house will appear from all sides by an inspection of the model and in another space may go through the rooms exactly reproduced from the architects' drawings. The price of the furnishings of every room will be made public and in the selection of the decorations and furnishings some of the best talent of the city will be given expression.

The purpose of this contest is purely educational. The plan of the Art Association to reproduce the prize winning plan has the approval of the housing commission of the Cleveland Chamber of Commerce, the Builders' Exchange, Real Estate Board, Associated Charities and other trade and civic organizations, the membership of which interlock with the Art Association.

A thoro survey of the building permits issued in Cleveland during the present year shows that the average price of residences erected, according to estimated cost given to the Building Department, is $3,100. There are few houses costing below $2,500 and about an equal number costing more than $3,500. In fixing a limit of $3,000 for the contest house the architects state that they are representing the most prevalent type of single dwelling.

Copies of the prize-winning plans will be available to all visitors to the show.

This architectural contest is not connected in any way with the prize house to be given away at the show. This gift house was designed by Architect Ed. A. Ruggles, of Cleveland, and is being erected on Lake Shore Drive. It will be a complete home, to the last detail, and will be presented to the winner in a novel contest conducted at the exposition. The prize house, with the lot it occupies, is valued at $6,000.

Rumored Organization of Refractories Plants

The New York "Evening Telegram," under date of November 18, says:

"There is a movement on foot to organize the refractories industry by combining a number of the most important concerns in one great company.

"Thirty years ago this industry in the United States produced products to the value of $400,000, but today the value of these products is nearly $20,000,000. There is no organization of the producers of refractory products and each manufacturer works for himself. The result has been a constant throat-cutting policy such as existed in the steel, coal and other industries until these industries organized.

"Dr. H. M. Walters, of Pennsylvania, is understood to be the man behind the movement. It is the intention of the organizers to select a New York banking firm to look after the banking end and to establish a market for stocks of the various concerns now in the refractory trade.

"This industry has never had a common center nor interest, and although of large proportions is practically unknown to the general investor and speculator. Refractory products in addition to being an essential economic factor in the production of steel, coke, cement, etc., are but a unit in the country's production of clay products, which combined total $200,000,000 a year.

"These industries need combination and banking facilities consistent with their present greatness and future growth. Hence the movement started by Dr. Walters."

"Brick and Clay Record's" subscription file gives Dr. Walters' address as 153 East King street, Lancaster, Pa.

General Refractories Buys Mt. Union Plant

It is rumored in fire-brick circles that the Mount Union Silica Brick Company, of Mt. Union, Pa., has been sold to Senator William C. Sproul, president of the General Refractories Company. The Mount Union plant is the largest independent manufacturer of silica brick and shapes in the country and was owned by the estate of the late Scott Dibert, of Johnstown, Pa. The company owns, in addition to the extensive works at Mt. Union, a tract of 3,200 acres of ganister, the raw material from which silica refractories are made. The price has not been made public, but is said to be in the neighborhood of $600,000.

Rookwood Pottery at the President's Wedding

Among the wedding presents at the coming nuptials of President Wilson and Mrs. Galt will be found two of the most beautiful pieces of ware ever turned out by the Rookwood plant at Cincinnati. These are a vase, designed by E. T. Hurley, and executed in the new cream color which is the pride of the pottery, and a flower bowl. The two pieces were selected and sent to Washington by John I. Shuff, postmaster of Cincinnati, and a personal friend of the President. They are believed to be among the first gifts to reach the White House for the wedding.

Puritan Brick Company Elects New President

The directors of the Puritan Brick Company met at the plant at Hamden, Ohio, on November 11 and 12, and elected Dr. J. W. Morrison to the presidency, to fill the vacancy caused by the death of William L. Holmes. Dr. Morrison has been connected with the Puritan Brick Company since its organization, and has served continuously as a director and as salesmanager. For the present he will continue to act in the latter capacity in connection with his duties as president.

St. Louis Extending Its Fire Limits

The new ordinance which will extend the fire limits of St. Louis, Mo., so that they will cover practically the entire city limits, will pass the council, it is hoped, without much opposition and so make St. Louis one of the most fire-safe of American cities. The present limits, while extensive, have not covered certain sections that are being rapidly improved, and the speculative builder, with his frame fire-trap, has begun to make himself felt. The new ordinance will curb his activities. One of the most difficult things in the world is convincing a speculative builder that he is building for the future. It is against his business training. So it becomes necessary to enact ordinances for the purpose.

Clay Products Considered as Engineering Materials*

A Paper Presented at a Meeting of
the International Engineering Congress, 1915, in San Francisco, Cal.

By A. V. Bleininger, B. Sc.

Bureau of Standards, U. S. Department of Commerce.

IN THE DISCUSSION of the strength of burned clay, two points of view suggest themselves. One involves the *intrinsic* strength of the material for different degrees of hardness, i. e., with the progress of vitrification; the other, the strength of clay when fabricated into various shapes. The first case concerns itself with the fundamental properties of the material; the latter, with the structural aspect.

The treatment of the first case makes necessary, as much as possible, the elimination of all extraneous factors, such as unsymmetrical shape and molding structure. In the second case, the element of the shape of the product is introduced, as well as the molding structure, which is unavoidable and which may prove an important factor.

From the structural standpoint, clay products cannot be studied as a material, but must be taken up according to the kind of product, whether solid or perforated brick, building tile, architectural terra cotta, sewer pipe, fire-brick, conduits, etc.

The physical properties of clay products depend primarily upon the kind of clay from which they are manufactured. Since clays differ widely in chemical composition, in plasticity, fineness of grain, shrinkage, burning behavior, refractoriness, color, etc., according to their mineral structure and geological origin, the products made from them are likewise subject to wide variations as to their properties and appearance.

A. V. Bleininger, B. Sc.

CLASSIFICATION OF CLAYS

From the industrial standpoint, clays may be roughly divided into six classes:

1. Primary kaolins, usually white burning, very refractory, and of low plasticity and strength.
2. Plastic kaolins, not as white burning as primary clays. May be very plastic.
3. Clays of the fire-clay type, ranging from materials of high refractoriness to those inferior in this respect. Certain highly refractory clays, called flint clays, are almost lacking in plasticity. Very plastic clays, called ball clays.
4. Shales. Fine-grained, hard clays, showing well-defined cleavage and often slate-like in appearance. They differ widely as to composition. Many ferruginous shales are sources of best paving brick. Shales, as a rule, are uniform over comparatively large areas, and hence have great industrial importance.
5. Alluvial clays. Of recent geological origin and found principally in old and new river valleys. Vary widely in composition and physical behavior, from clays of excellent plasticity to very sandy materials. As a rule, unsuitable for paving brick. Uusually burn to a red color.
6. Glacial clays. Heterogeneous mixture of clay with various rock debris. Frequently calcareous, causing clay to burn to a cream or buff color. As a class, difficult to work and hence suitable only for crude products.
7. Loess clays. Wind-blown deposits, usually silicious and hence of low plasticity. Used only for common brick.

From the structural standpoint, the No. 2 fire-clays, shales, and alluvial clays are of greatest importance.

CLASSIFICATION OF CLAY PRODUCTS

For the purpose of the present paper, eight groups of clay products may be considered, as follows:

1. Building brick.
2. Paving brick.
3. Hollow building tile and fire proofing.
4. Architectural terra cotta.
5. Sewer pipe and drain tile.
6. Refractories.
7. Floor, wall and roofing tile, glazed brick.
8. Sanitary ware.

According to the particular use of each class of product, certain requirements must be emphasized, which presuppose the predominance of definite physical qualities and the minor consideration of others. These various physical properties might be summarized as follows:

1. Compressive strength.
2. Transverse strength.
3. Modulus of elasticity.
4. Resistance to shear.
5. Hardness and toughness.
6. Porosity and resistance to weathering and corrosion.
7. Resistance to high temperatures and sudden temperature changes.
8. Thermal conductivity, specific heat and thermal expansion.
9. Sanitary aspect.

The subject can be treated most expeditiously by taking up the various clay products in the order named above.

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*By permission of the Director, Bureau of Standards.

BUILDING BRICK

Relation Between Intrinsic and Structural Strength

The principal requirements with reference to building brick are compressive strength and resistance to transverse rupture, and porosity, together with durability, i. e., resistance to weathering influences. It must be realized, however, that from the very nature of the material the stresses to which it is subjected in structures are but a small fraction of the intrinsic strength. This is due to the fact that the mortar is an important factor. Thus, no matter how hard and strong the brick may be, if for instance, lime mortar is used, the compression strength of the structure will not exceed a certain limit. The stronger the mortar, the more will the strength of the walls or piers approach that of the individual brick. This has been shown very conclusively by the pier tests made at the Watertown Arsenal and the Bureau of Standards.

Intrinsic Compressive Strength of Clays

The intrinsic strength of clays has been recently determined at the Bureau of Standards for 3.5-inch clay cubes, made from typical clay deposits and burned to several temperatures. These results are shown graphically in the diagram of Fig. 1, from which it will be seen that with some clays the rate of increase in strength, from the point of maximum porosity, is quite marked at the beginning and then remains practically stationary for a considerable interval. Others show a steady increase. The state of vitrification is characterized, as a rule, by a decided rate of gain in strength. This is due principally to the gain in the inherent, mechanical strength of the solid vitrified clay and only secondarily to the decrease in pore space. Overburning, with its accompanying vesicular structure, is at once indicated by a drop in strength. The porosity, *per se*, affords a good index of the quality of the brick made from a given clay, but cannot be used as a general criterion for all kinds of clays. This is shown by the following results, which give the porosity of six clays at the point at which all showed a compressive strength of 5,000 pounds per square inch.

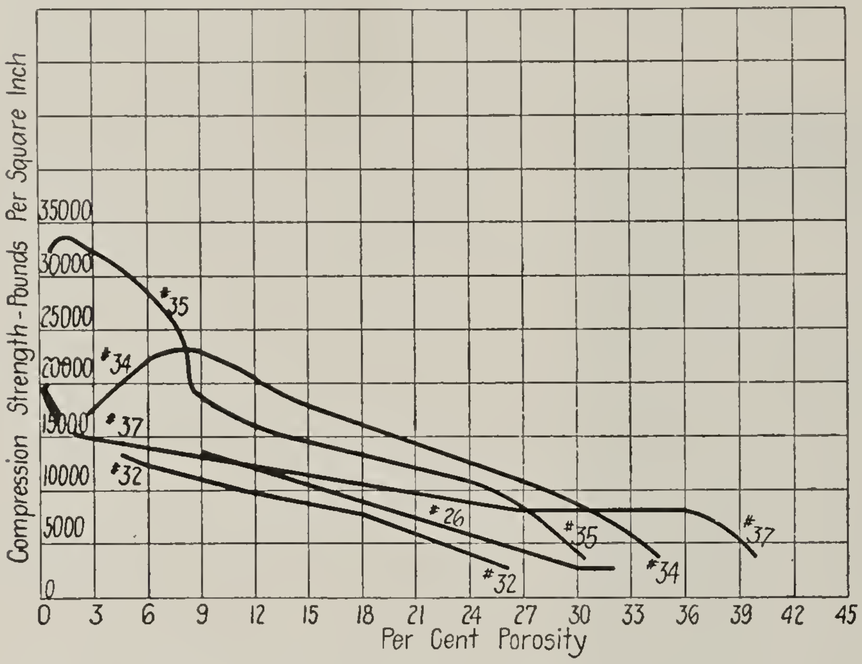

Fig. 1. Variation of Compressive Strength with Porosity. Bureau of Standard Tests

Sample No.	32	26	33
Kind of clay	Fire clay	Ferruginous surface clay	No. 2 fire clay
Per cent porosity	23	25	26.5
Sample No.	35	34	37
Kind of clay	Shale	Shale	Calcareous surface clay
Per cent porosity	29.5	33.5	40

The porosity, in these examples, represents the percentage of the actual pore space in terms of the volume of the specimen. Usually, the porosity is estimated by means of the absorption test, which is made by immersing half-bricks in water for twenty-four hours and boiling them for four hours. The difference between the weights of the dry and the saturated specimens (weighed cold), computed in per cent of the dry weight, gives the absorption. Approximately, per cent porosity corresponds to twice the absorption values.

The compressive strength reached necessarily varies with the kind of clay. Shales, as a rule, result in the greatest strengths; calcareous glacial clays (not vitrified), in the lowest. Hard-fired, red-burning, alluvial clays are about equivalent in this respect to the corresponding grade of building brick made from the semi-refractory fire clays.

The results of the compressive strength-porosity relations are compiled in Table I.

Compressive Strength of Brick

With reference to the compressive strength of commercial brick, it must be realized that the strength is not uniform in all directions. According to the method of manufacture, it will be greater along one plane than along any others, according to the direction of the flow of the material in the plastic state. In addition, the question of such structure as auger lamination enters as an important factor. It is a well-known fact that structure is produced, in shaping the brick by means of the auger machine, both by the action of the auger and by the differential flow of the clay through the die. The clay is delivered from the auger wings in helical strands, and in this condition is forced through the die. The strands of the clay may be imperfectly welded, thus giving a structure similar to the twisted strands of a rope. On the other hand, the friction of the clay against the iron surface of the die causes the clay to flow at a greater speed at the center of the stream, resulting in a structure resembling overlapping cones. This is called differential lamination.

Table I

No. of clay	Firing temperature in cones	Per cent porosity	Average compression strength, lbs. per sq. in.	Average per cent deviation from mean crushing strength
26	08	30.94	2,281	8.10
	06	31.86	2,944	9.54
	04	27.37	4,085	14.48
	1	20.56	7,467	7.91
	3	21.47	8,101	16.57
	5	9.13	13,368	3.25
32	08	26.23	3,014	10.02
	06	24.11	4,217	15.64
	02	16.00	8,485	6.13
	3	16.08	9,205	11.49
	5	10.29	10,339	8.83
	7	4.79	13,424	18.10
33	08	27.23	4,139	11.61
	06	25.95	4,883	8.72
	04	22.28	9,335	5.32
	02	21.74	9,318	8.45
	1	20.47	10,555	14.25
	5	14.47	9,751	22.37
	7	12.12	15,353	12.69
34	08	34.74	3,949	10.69
	06	33.34	5,795	12.74
	04	21.95	13,538	8.55
	02	16.74	16,368	8.38
	1	15.22	17,340	11.33
	3	6.45	22,583	9.50
	5	1.41	15,491	27.45
	7	0.30	19,362	9.19
35	08	30.31	4,111	14.10
	06	26.42	8,967	14.50
	04	17.69	13,989	15.00
	02	8.53	18,511	7.50
	1	7.94	24,399	14.36
	3	0.66	32,341	19.84
	5	0.16	30,342	17.08
37	06	40.51	4,136	7.79
	02	38.14	6,668	6.77
	1	35.26	7,887	8.41
	3	27.22	7,887	16.89
	5	0.42	16,895	15.56
	7	0.26	20,283	8.04

(*To be continued.*)

Running a Plant to Capacity

Being the Third of a Series of Articles on the Manufacture of Building Materials in Burned Clay

By A. F. Greaves-Walker

(Asst. Genl. Mgr. Sun Brick Co., Ltd., Toronto, Ont., Member American Ceramic Society, Member English Ceramic Society, Member Royal Society of Arts, Fellow Utah Academy of Sciences)

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(Concluded from the November 16 *Issue)*

THE CARE OF MOTORS

When electric current is used, the motors require careful attention. The motor is rather a new tool in the hands of the clayworker—something out of his line. He is inclined to look upon it as something with which he is anything but familiar—and therefore to be left strictly alone—or a contrivance so wonderfully self-contained that no particular attention need be given it. Seldom are experienced electricians employed on a clayworking plant, but it will pay to encourage someone to make a study of motors and then give him charge of that part of your equipment. The fact is, a motor does need intelligent care if it is not going to prove a big expense.

The bearings are the principal source of trouble. Bearing trouble leads to all of the other troubles, causing grounding of the field coils, charring of the insulation, etc.

The bearings should be emptied of oil at least once each month and then thoroly washed out with kerosene. The old oil should not be put back (unless it is filtered), but new oil used each time. The air gap between armature and field should be constantly examined, and as soon as it is seen to be closing on the bottom, the bearings should be adjusted or new ones put in.

It is the neglect of this air gap that causes nearly all "burn outs." As soon as the armature comes in contact with the field, the friction causes heat, which in turn burns the insulation and causes the machine to "ground."

On most motors, especially large ones, there are adjusting nuts on the under side of the frame. As the bearings wear and the armature drops, these nuts should be taken up. This increases the air gap at the bottom.

When all the adjustment is taken up (and it only amounts to about one-eighth of an inch) new bearings should be put in at once.

As clay-plant motors are generally in dusty places, they should be regularly blown out with a hand bellows. Dust accumulating in the coils and between the armature bars, especially if it gets damp after standing, will sometimes cause serious trouble. Motors when receiving regular attention *never give trouble.* It pays to look after them, for the burning out of a single motor often ties up a plant.

DRY PANS

The troublesome points about a pan are the scrapers, screen-plates, step and clutch. The scrapers are subjected to especially hard service, where hard, lumpy shales or damp sticky clays are used. Often in such cases, those which originally come with the pan are not strong enough, or are not set at the proper angle for the particular material. When necessary, heavier ones should be put in. The "shoes" or replacable, adjustable plates on the front of the scrapers should always be kept at a point where they *just clear the screen plates* (about one-quarter of an inch). More screen plates are broken and scrapers torn off by their being kept up too high than thru any other cause. Wedge shaped pieces of shale get between the plates and scrapers and *something must give away as the revolution of the pan drives the wedge further in.* It is generally the screen plates that are broken, altho sometimes the scraper is torn off. In one instance a large plant was known to have broken from three to ten screen plates per day for a considerable period before it was discovered that the scrapers were being carried too high. Aside from this, a "close" scraper keeps the pan bottom clean and gives maximum grinding capacity.

It is important that the scrapers have a long sweep from the muller to the rim. Short scrapers are subjected to a far greater strain, both from the friction of the bottom and the blows from lumps, than a long sweeping scraper, and the former give far greater trouble.

The underscrapers, or scrapers under the pan, should receive most careful attention. These are so situated that it is extremely hard to examine them without considerable trouble, and consequently they are neglected. When one of these is loosened up, thru nuts dropping off or bolts breaking, it generally means broken pan arms and screen plates, or torn up bottoms and chutes. The use of spring washers under every nut, and *regular inspection* will practically eliminate trouble from this source.

Screen plates are often a source of trouble and expense to a plant. Besides being careful to keep the scrapers down, great care should be taken to keep the mullers from running even a fraction of an inch over on the screen plates. If they are allowed to do so, and a piece of shale or other hard material happens to be even partly resting on a screen plate, the direct pressure transmitted to the screen plate will likely crack or break it.

In some cases, even the utmost care will not allow the use of cast-iron screens, on account of the excessive breakage. It is then wise to resort to malleable iron. These are expensive but they are practically unbreakable and give far better service than the alloy plates which cost about the same.

Some plants are greatly troubled with pan steps. Lack of proper attention has more to do with this, than has the type of the step. Besides being subjected to an excessively hard service, the step is located in a dusty place, and it is generally the dust and lack of proper lubrication that causes difficulties. Most steps are not properly protected from dust, i. e., are not tightly enclosed. At small expense the dust-cap can generally be fitted so that packing can be inserted around the shaft in the same manner as in the stuffing box of a pump or engine cylinder.

Another method is to fasten a flat or umbrella shaped circular plate tightly around the shaft, just above the dust-cap, as shown in Figure 2.

Dust falling on this plate will be thrown clear by centrifugal force. It often happens that, when steps are sent out of the factory, they are not provided with proper lubricating facilities. Small pipes or grease cups are generally provided, but they soon become clogged at the inside end with dust, heavy oil or metal particles. In such cases, the man who oils may think he is feeding plenty of lubricant, or that the step is not using it very fast, whereas it is getting little or nothing. An inch-and-a-quarter or an inch-and-a-half feed pipe, provided with a cap, will overcome this difficulty. If this pipe is brought up to the floor level of the factory or high enough to give it a "head," and the step housing made oil tight, the step can run on oil under a slight pressure.

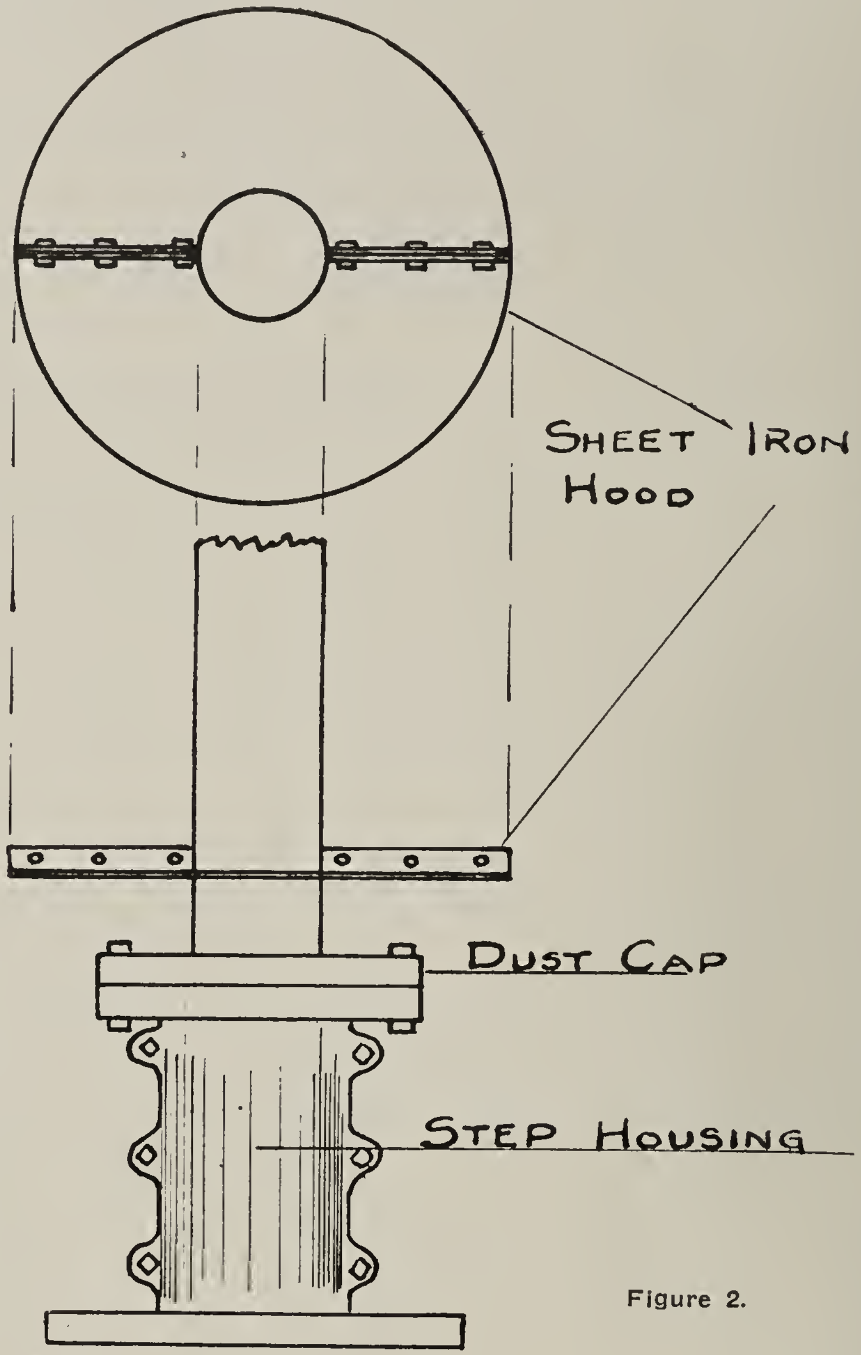


Figure 2.

Step Protector

An extra step should always be kept on hand, and the steps in use should be regularly examined—at least once each month.

The clutch, always important on any machine, should be particularly well looked after on the pans. Unless a pan can be stopped quickly, great damage may result from what otherwise would be a trifling accident. On many plants, any one who sees fit to do so can "monkey" with the clutches in an effort to "adjust" them. As a consequence they are constantly giving trouble and continually being "cussed." *The writer has known a plant to be shut down for a week simply because a clutch would not "throw out."* Clutches are generally simple affairs and most of them will give efficient service if properly handled.

The superintendent should himself adjust the pan clutches and all other clutches about the plant, or should delegate his mechanic, a foreman or some other thoroly capable man to do so, *and should forbid others to touch them.* Such a rule may cause a few minutes delay at times, but will pay in the long run, and on any plant.

Bushings in the loose pulleys are likely to give trouble when not given sufficient lubrication. Careful attention should be given them and a duplicate for each pulley should be kept constantly ready for use.

Crown wheels and pinions seldom give trouble, but occasionally one will be broken by a sudden jar from a hard lump in the pan. It is a very good policy to have extras on hand.

ELEVATORS

When an elevator causes constant shut-downs—and there are many such—the trouble may be due to a number of causes, all of which can be remedied. In the first place, most clay plant elevators are not designed correctly, consequently trouble is to be expected, and undoubtedly will continue until the proper remedy is applied, which is rebuilding. Some of the things that cause elevator trouble are: improper spacing of the buckets; undersized head pulley; too slow or too great speed; incorrectly designed discharge chute; incorrectly designed feeding chute; loose belts and failure to clean out the boots.

Buckets should be spaced on eighteen inch centers, and for a nine foot pan, should not be less than six inches by twelve inches in size.

Small head pulleys are often a most serious source of trouble. When the head pulley is too small, the ascending buckets will invariably throw part of their load into the air when they strike the pulley and start over. This is due to the abrupt change of direction, the dust being thrown upwards by centrifugal force. A large percentage of the material thus thrown out falls to the boot and requires rehoisting, thereby at times overloading the elevator and choking it. Standard construction requires that the head pulley be thirty-six inches in diameter. Large pulleys, and belts traveling at the proper speed, absolutely insure the material remaining in the buckets until the proper point of discharge is reached.

The proper belt speed for an elevator of standard design is 325 feet per minute. This speed is taken for the average dry shale. It may vary as much as thirty feet either way on some materials, but with this speed as a starting point, experiment will determine the proper speed for any particular material.

The discharge chute may be too high or too far away from the buckets. These defects result in material being thrown down again into the boot, thus necessitating rehoisting.

The feeding chute is almost always built too low. *It should be so located that the material will be fed into the third bucket from the bottom.* This allows the overflow to be caught by the two buckets below, and does away with the necessity of the buckets digging their load from the boot. Making the buckets dig their load from an enclosed boot should always be avoided, as it invariably results in an unnecessary consumption of power, the ripping off of buckets and torn belts. It is the writers' opinion that more elevator trouble is due to this fault than any other. Figure 3 shows an elevator of standard design.

The bucket belt should always be kept tight, and should run on a slatted pulley at the bottom. A slatted pulley will not allow clay to "build up" on it and therefore the belt will run true in the housing instead of scraping the sides and occasionally stopping through friction.

"Digging out" the boots twice a day will eliminate a great deal of trouble, especially in wet weather or when using damp materials. The dust becomes packed very hard under the buckets and the friction on them gradually increases until they stop. On many plants the boot is never thought of until the elevator chokes and even then only enough is dug out to start up again. By having a man *thoroly clean* all the boots each noon and night, a vast amount of time and temper will be saved.

PUG-MILLS

Up to very recently these machines were built entirely too light for the heavy duty required of many of them. This has now been remedied, but hundreds of plants are equipped with pug-mills which are light and troublesome. As a general rule the trouble is to be found in the gears and intermediate shaft. Gear trouble can be remedied by replacing the much used cast-iron by either cast- or cut-steel. When the intermediate shaft often breaks, it should be replaced by one of larger diameter, or if that is impossible, by one made of special steel. In any case, it is well to have an extra one on hand with keyways cut and ready for an emergency. Most pug-mills, being set on a platform, *which at best is not a good machine foundation,* are subjected to considerable vibration. This has a tendency to loosen bolts and destroy bearings. The use of spring washers under the nuts will reduce the bolt trouble, but the pug-mill should be examined daily to prevent accidents.

BRICK OR TILE MACHINES

Machines are subject to break-downs in the same parts as pug-mills. The shafting is generally the most troublesome, with the intermediate easily in the lead. Many clayworkers have overcome the difficulty by installing larger shafts all around. Where this is impossible without practically rebuilding the machine, special steels must be resorted to, or extras kept in constant readiness. Where the intermediate shaft is the only one giving trouble it is a very good plan to have the extra equipped with a set of gears. It can then be put into place with little delay.

Machines should always be equipped with steel gears. A cast-iron gear will lose a tooth without giving a moment's warning, while a steel one will wear the teeth to a feather edge before breaking.

In going from one plant to another it is surprising to note the number of machines in use with cracked and patched barrels. In a case of this kind, when the conditions become so bad as to require a new barrel, it is poor practice to order a duplicate of the old one. If the maker will not make something stronger, call in a pattern maker who knows his business and have him make a pattern that will produce a casting which will stand up in spite of poor pugging.

CUTTING TABLES

There are many small parts about a cutting table which should always be kept on hand. Break-downs on a cutter are generally caused by wear, which should be readily caught before it gives serious trouble. As soon as a cutter begins to "act up," the trouble should be located and, *if the responsible part shows wear, it should be replaced.* Patching up does not pay, as a general rule, with automatic cutters.

KEY TROUBLES

One of the most annoying of the little troubles on a plant is caused by ill fitting keys. A pulley or a gear will constantly slip sideways, probably not causing any great loss of time, but helping to keep down "capacity." As a rule it does not require much time or work to correct this, but there can be no question that on some plants it is neglected. Day after day the plant is shut down for five or ten minutes at a time, while a pulley or gear is driven back to place, and still nothing is done to permanently correct the trouble.

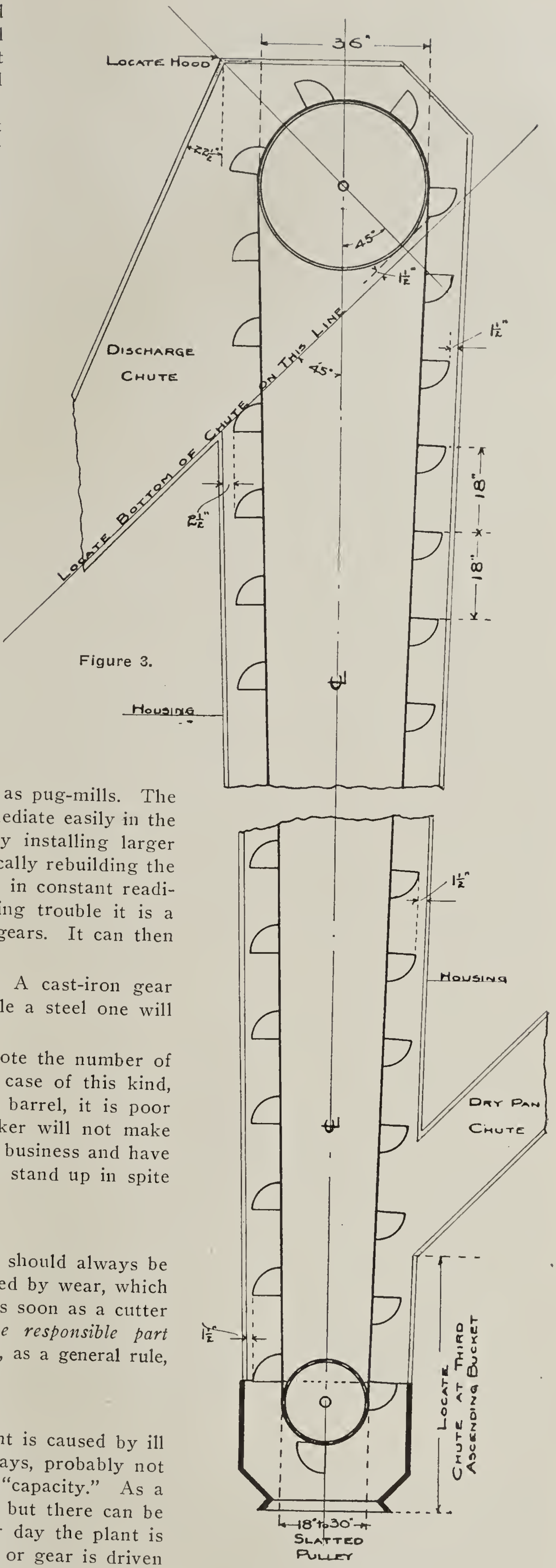


Figure 3.

Clay Plant Elevator

A key once properly fitted is there, and it is worth while to see that this item is properly attended to.

BELT TROUBLES

When this subject is mentioned, the average clayworker is "right at home,"—and there's a reason. Briefly, it is *cheap belts.* The writer has sometimes thought that if it were not for the clay plants and saw mills, most of the companies making cheap belts would either go out of business or improve their product. The amount of money clayworkers lose thru shut-downs to take up belts, repair broken lacings and thru "slipping," is appalling. In every instance where serious trouble of this kind is encountered it can be traced to low grade belts, or belts too light for the service. The trouble is always at its worst during a rainy spell, when the belts draw up or shrink, and tear out at the lacing. After a wet spell they stretch and require taking up.

To constantly go through this annoying and costly experience is not at all necessary. It is not the intention of the writer to recommend any particular make of belts, but a plant *can* be equipped so that this trouble is reduced to a minimum or practically eliminated. The best of belts will stretch or occasionally break a fastening, but invariably they give sufficient warning to allow repairs to be made out of operating hours.

Machines are often equipped with belts that are too light (too few plies) or too narrow. Contact between the belt and the pulley is the all important factor in a belt drive and the greater the contact the better the drive. Naturally, drives should always be arranged so that the tight side of the belt is on the bottom. This gives a greater arc of contact and eliminates the necessity of keeping the belt too tight. This in turn eliminates stretching and torn joints. When the drive is wrong—the tight side on top—it is always a good plan to add at least two plies to the thickness, over and above what the tables call for.

When buying belts for a plant, the best—and in belts this means the highest priced—are none too good, no matter whether they be stitched canvas, woven canvas, rubber or balata. There are many plants which are only prevented from getting "capacity" thru belt troubles, and it would pay exceedingly well to re-equip thruout.

Belts should not be allowed to run until they slip, but as soon as they show signs of being too loose, should be taken up. When a joint shows signs of failing, repair it as soon as the plant shuts down.

DRIERS

On many plants the drier controls the "capacity." Any interference in its operation, therefore, tends to reduce this capacity. Mechanical drier troubles are generally limited to the tracks and cars, and in waste-heat driers to the fan unit. Tracks should be so securely fastened that they cannot get out of gauge and *they should be kept clean.*

The bearings of the cars should be kept in good condition and should be oiled every time they come thru. The writer has seen plants—several of them—where it was necessary to shut down the factory several times each day so that the hands could go into the tunnels to push the cars down. The trouble was wholly in the tracks and car bearings. The loss on these plants ran into a considerable amount in the course of a year, and there are many like them.

The fan unit, running as it does twenty-four hours a day and during the whole year or season, requires most careful attention. This is especially true of the engine and fan bearings.

KILNS

It is a very usual thing for plants to be short of kiln room. On such plants it is not unusual for the output to be interrupted thru a kiln running a day or two over the usual burning time. As a rule, there is little excuse for this. The trouble can generally be traced to sleepy firemen, unintelligent cleaning and firing, or dirty kilns.

It is necessary to closely watch the kiln department at all times. The coal should be closely watched to see that a bad car is not at times "slipped over," and if the firemen are likely to be lax it may be good policy to put them on a bonus system, whereby they get so much money for each day saved under a stated period, with certain deductions for spoiled ware.

Much kiln trouble is due to dirty bottoms. Sometimes a bottom is allowed to go until it takes from one to three days longer to make the burn, and unfortunately this extra time is on the hot end, when the kiln is simply "eating up" fuel. Even some very good plant operators do not seem to grasp the importance of clean flues and when designing the kiln make no allowance for the accumulation of some dirt in the kiln bottoms.

Keeping the temperature *constantly progressing* during a burn, and keeping the bottoms clean, will aid materially in getting capacity where "kiln room" is an important factor.

PLANT INSPECTION

Before closing this article the writer wishes to make a suggestion to clayworkers which, if followed out regularly, will prove an almost certain "trouble preventive":

On a stated day each week while the plant is in full operation, have the superintendent, accompanied by the master mechanic, machinist, or "handy man," proceed to the clay bank or pit. There they pick up the bank foreman and together very minutely go over every piece of equipment that can in any way get out of order. Note is made by the superintendent of every defective or worn part and any other item that may need attention or is likely to interfere with operation.

The first two then proceed to the factory and with the factory foreman go through the same process in this department. Each department is visited in the same way until the entire plant is gone over. A copy of the notes taken is then made out for each foreman, detailing the defects found in his department, and a complete list is made out for the master mechanic or repair man. Instructions are given that repairs and changes be made before the next inspection.

The length of the list on the first inspection will be a surprise—even on the best of plants—but each week these lists will grow smaller and the number of jobs become fewer. The effects of such an inspection are several. The superintendent will come to know his plant as he never knew it before, and if the foremen are made of the right material, they will take pride in keeping their departments in such shape that no list is given them.

But most important is the fact that such inspections, if kept up regularly, will prevent dozens of break-downs, to say nothing of small repairs, by catching defects before they give trouble. Such inspections need not be confined to big plants, for even where the owner is superintendent, mechanic, head burner and all the rest, he will find them to be worth considerable money to him.

The mere fact that a man is "around" a plant continually is not enough. It requires a systematic search for *trouble causes* in order to systematically avoid trouble.

Another Greaves-Walker Article

Is in course of preparation and will appear

Right after New Year's Day

The Letter Box

A Place Wherein Our Readers May
Give Publicity to Their Opinions
on Subjects of General Interest

THE BEST INDICATION of the attention given a magazine by its readers is found in the number and the character of the letters it receives from them, commenting upon its policies and upon the articles that have appeared in its pages, or upon current topics. In this regard, "Brick and Clay Record" is particularly fortunate, scarcely a day passing that does not bring one or more of these to our offices. Only a few of these letters can be published, on account of limited space, and only those that have general interest are printed in this department.

Brick and the Complete Building Show

In the November 16 issue, a subscriber asked a question or two relative to the chances of brick's being "put in the shade" at the Complete Building Show. That his fears were justified is witnessed by the following letter, written under date of November 27 by Robert C. Mitchell, of the Farr Brick Company, of Cleveland, Ohio, and one of the directors in the Complete Building Show:

> I have just returned from the office of the Complete Building Show Company. While there, I was shown a plat of the exposition to be held at the Cleveland Coliseum next February. I am enclosing a copy of same, upon which is designated the space already taken by the lumber people of this city and of the space which has been optioned by the Ohio Face Brick Manufacturers' Association. Words fail me in my desire to express the great disappointment, and I might also state disgust, at the lack of action of the face-brick manufacturers of this and surrounding cities.
>
> I remember attending a meeting that was held, some months ago, at Indianapolis, Ind. It was called for the purpose of discussing a publicity proposition in connection with building brick—face and common. At this meeting, the advisability of the National Brick Manufacturers' Association holding its convention in Cleveland next February was touched upon, and one of the leading brick manufacturers of the country declared, very dramatically: "If face-brick does not predominate at the Complete Building Show, I will do everything in my power to prevent the National Brick Manufacturers' Association selecting Cleveland as its next meeting place."
>
> Since then, nearly all of the space has either been sold or reserved. The lumber people who have contributed to the success of the show very generously consented to our building the exterior of the prize house which is to be given away at the show, out of face-brick.
>
> If Cleveland keeps up its present record of building, it will spend, in the next three years, $100,000,000 in new construction. It is practically a virgin field for the face-brick men to work in, *yet of all the building material interests, theirs is the only one that has failed to recognize the opportunity for effectual educational work at the Complete Building Show.*
>
> ### ESTIMATES AN ATTENDANCE OF 200,000
>
> We estimate, at the very lowest, an attendance in excess of 200,000 people during the ten days of the show. Several important conventions will be held in Cleveland during this period. Such an aggregation of persons directly or indirectly interested in fire-safe building construction has never before been assembled in one place and at one time.
>
> Up to date, the only space taken by any individual face-brick manufacturer is one measuring 10 ft. by 10 ft., taken by the Kansas City Buff Brick Company—"More power to them, may they always prosper."
>
> Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination, realizing the unfortunate effect upon safe-building that might result from the indifference of the manufacturers of face-brick, stirred the Ohio Face Brick Manufacturers' Association to action, and a committee was appointed to go over the situation and agree upon a plan of action that would enable manufacturers of face-brick who are interested in markets that would be affected by the Complete Building Show, to make a creditable presentation of their material and accompany it by descriptive literature that would add to its effectiveness.
>
> Upon his own responsibility, Mr. Stoddard is holding a space costing about $700, pending action by this committee and the interests it represents. The final taking of the space, we are informed, will depend upon the action of the American Face Brick Association, at its coming convention at Old Point Comfort, Va.
>
> ### LUMBER MEN TAKE $3,500 SPACE
>
> The lumber interests of Cleveland alone have taken $3,500 worth of space *and are anxious to take all of the space that remains unsold.* The manufacturers of common-brick operating in Cleveland have taken a space exceeding in size that which is being held for the face-brick manufacturers of the entire country.
>
> The whole thing appears to me very like a disgrace to the face-brick men of this country. The show is counted upon to be a big success and it now appears to me as though the face-brick men were going to permit the lumber men to run away with the honors.
>
> I ask: "Where are those leading lights in the brick industry who, by their own words, are willing to make any sacrifice to do anything in their power in the interest of clay products?" All I can say is that I am ashamed of them.

The diagram or plat which accompanied Mr. Mitchell's letter shows very plainly that the lumber interests of Cleveland, Ohio, are far from being "asleep at the switch." Evidently, instead of complaining that the supply exceeds the demand, the lumber men are taking every opportunity that is offered them, *to so increase the demand for lumber as a building material, that no natural increase in production can catch up with it.*

At the same time, a mighty plaint is arising in the face-brick industry, which, taking as its key-note the effect of the rough-face brick upon the market, and the bringing in of a host of new face-brick producers, declares, without reserve, that the supply of face-brick has, for years, exceeded the demand. Without attempting to discuss this condition, it is well to point to the fact that very little has been done to stimulate a face-brick demand, and no one knows which of the publicity schemes for face-brick, which have gone glimmering for lack of financial support, might have reversed the present conditions of supply and demand despite the advent of the easy-to-make and low-producing-cost *matte* brick.

More Light on Brick Publicity

Paul B. Belden, general manager of the Belden Brick Company, of Canton, Ohio—author of the most widely discussed of all of the papers read at the 1915 face-brick convention—now writes a letter that will throw some light on Mr. Mitchell's question, published above. Mr. Belden writes, under date of November 27:

In your issue of November 16, "Kansas" makes inquiry as to what is going to be done to properly represent brick at the Complete Building Show, and we notice that in your reply you are very hazy about the matter; so for your information have to advise that the Ohio Face Brick Manufacturers' Association appointed a committee, consisting of M. McC. Everhard, George F. Markley and myself, to go over the situation and report our findings, and offer a plan of action.

We met with the officers of the S-A-F-E, under which auspices the Complete Building Show is to be given, and at the convention of the American Face Brick Association, at Old Point Comfort, Va., December 8, 9 and 10, we are going to present a plan that will be along the following line:

A very attractive place, and one of ample size will be secured, at the Complete Building Show, and a good looking exhibit erected. Charles W. Ritchie, an architect with offices in Cleveland, Ohio, is going to get out several sets of plans for practical, small houses (built of brick) to cost from $2,500 to $3,500. In designing and planning these houses, he is going to largely follow the plans used by speculative builders for frame house construction in the city of Cleveland.

Our association is going to get out as many thousands of these plans as we are able to raise money to pay for, and we are going to have a good brick man—an experienced brick salesman—in charge of the exhibit. He will be in constant attendance at the show.

In order for us to put this plan across in as good shape as it deserves, it is going to be necessary for us to have something like $5,000. We hope "Kansas" and all of the other manufacturers will be liberal in their donations, and that, with the help of the national face-brick association and its individual members, as well as face-brick manufacturers who do not belong either to it, or to the Ohio association, we will be able to produce literature that will convert thousands to the use of brick where frame is now being used.

We are glad of the opportunity of publishing Mr. Belden's letter, for it proves that a general, or wholesale condemnation of brick men, as written by Mr. Mitchell, is not altogether correct. There are brick men who are doing things in a broad way. Some of them have given so liberally to this, that, or some other publicity movement, that the total represents an appreciable percentage of the running expenses of their business. Others, beside contributing real money to these movements, are spending time and giving thought to planning the general good of the industry, which time and thought, given to their own individual business, might bring returns which, while not so great in the long run, would at least be immediate. That these men are not supported by any large proportion of their fellow clayworkers makes their altruism all the more worthy of praise.

Analyses That Are Misleading

The time spent in reading the following letter can well be placed upon the credit side of the ledger. Not only does it give a clear and distinct exposition of a subject that has vital interest for every manufacturer of burned clay building materials, but for every man who is a householder. It explains itself as it goes along. It nails misrepresentation. It bears the impress, not only of the man who knows, but of the man who *cares*. It is from the pen of Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination, and bears date of November 16:

Since the "American Lumberman," in an exhaustive analysis of the Board of Underwriters' fire figures for 1914 (published in its issue of November 6) attempts to put a stinger at the end of its lash by referring to the S-A-F-E, I feel that I have the right to comment upon the effusion.

While the "American Lumberman" and the National Board of Fire Underwriters are calling each other names in a language that nobody else understands, why not print a few figures pertinent to America's fire-loss?

The "American Lumberman" is a big, vigorous paper, ably representing its trade, and it prints a lot of good stuff that is of undoubted value to its readers. It has lately taken up what I believe the most important work a lumber journal could engage in—that of instructing the users of lumber in the best and safest methods of installation, and in discouraging its use in *some* of the places where it constitutes a dangerous fire-hazard.

The "American Lumberman" certainly does not hope to show, by its analysis of the fire figures, that there is no connection between the wide use of lumber in building construction, and the enormous fire-loss of this country. That is the only question at stake.

It cannot be proved by figures that wood will not burn.

It cannot be proved by figures, nor by any analysis or juggling of statistics that burned clay, cement and the other permanent materials *are inflammable, nor that they do not resist fire.*

Just in the proportion that non-burnable materials are *consistently* used, will the fire-danger be lessened. Nothing in the Underwriters' figures nor in the "American Lumberman's" analysis of them, contradicts this statement.

I do not know what the Underwriters undertook to prove or disprove in their gerrymander system of handling the fire-losses from some seventy-six scattered cities in groups of six. The report is so lacking in essentials that it has no bearing upon the big, vital question—*whether it is best, safest, and more economical to use fire-resistive materials in building our homes, our schools and factories.*

There can be no intelligent analysis of fire figures that includes fires in all types of buildings. No fair proportion can be drawn off or ratios deducted, when a sixty suite apartment, with exterior walls of brick and inflammable interior construction (and of the most dangerous fire-trap designing) —a five-room cottage, and an up-to-the-minute, steel skeleton skyscraper are all treated as equal units in the statistics.

SIXTY TIMES AS GREAT A FIRE RISK

In the sixty suite apartment there are, nominally, sixty families, sixty kitchen ranges, sixty times as many gas-jets, sixty times as many children, sixty times as many matches, sixty times as many chimney openings, and sixty times the amount of electric wiring, as there would be in the five-room cottage. Is it not fair to assume that there is sixty times the chance for a fire being started in the apartment building as there would be in the cottage?

Yet in the Underwriter's figures, with which the "American Lumberman" is having such a strenuous time, there is no distinction between the two buildings.

Without assuming to aim a criticism at any particular organization or group of organizations, I firmly believe that the reason that the fire-loss continues to grow and that so-called fire-protective measures fail to accomplish much, is that these organizations deal too much with figures, and not enough with basic facts.

"Fire Prevention" usually does not begin until the building has been erected. The movement should start in the office of the architect, or with the owner before he begins to plan his structure.

The popular conception of fire-prevention seems to be as careful as possible not to have a fire, but, in case one does come, to have enough insurance to prevent the whole loss coming to one man, or to one group of owners.

Doctors there have always been, but it is only recently that any effort has been made to make the doctor unnecessary by insuring the public health through sanitation. Now every civilized community considers the water supply, sewer system, playgrounds in congested residential districts, fly-swatting, free dental examination in schools, and other means of disease prevention.

That is exactly the way the S-A-F-E is attempting to attack the fire-loss, and while it does not depreciate the technical work of other organizations, it has discovered in its short existence that some real, practical good can be accomplished by the elimination process—particularly if that process strikes at the root of the evil and not at the tips of its foliage.

YOU PAY FOR THE FIRE, ANYWAY.

The great difference between the doctor and fire-protection is that you have to settle for fire-protection, whether you have a fire or not, whereas the doctor's bill only comes in after you have been sick. This leads to another big hole in the fire figures as published by the Underwriters and by the "American Lumberman," each to prove its respective case. No account is taken of the cost of "protection" in the statistics.

The fact that a hazard exists makes it necessary to pay fire-insurance and to maintain fire-departments, whether fires occur, or not. The cost of fire-fighting is not necessarily based upon the number of fires in one community. It is the aim to have sufficient apparatus and a large enough number of men to reach any part of the city in the course of a few minutes. The existence of large numbers of inflammable buildings invariably means high insurance rates, and expensive fire-departments.

The fires being many or few and the amount of loss *per capita*—these things are not nearly so important to the average home-builder or owner as the amount of his annual tax—a tax imposed because a large majority of his townsmen build to burn.

The "American Lumberman" tries to bring out a "punchy" conclusion from its analysis of the Underwriters' figures: It is that in certain groups of cities, the numbers of fires are not greater, per thousand buildings, and in sections largely frame, than in sections where brick buildings predominate. This effort falls flat for the reasons already stated. Apartments housing large numbers of families, shops, stores, factories and other buildings containing the greater risks, are practically all of brick or other fire-resistive material, while frame construction, excepting in a few "back-number" cities, is used almost exclusively for dwellings. It would be just as fair and logical to say that Australia is a more wholesome country to live in than Belgium, based upon the death rate in these countries for the past eighteen months.

Within ten days of the issue of the "American Lumberman" in which this analysis appeared, there were three tragic fires reported on the first page of the principal American newspapers. In the box factory fire at Pittsburgh, the school fire at Peabody and the shop fire at Brooklyn, *the great loss of life was due to the use of inflammable material in the interior construction of the burned buildings.* A fire once started in such a structure outruns the occupants in their race for life. Had fire-resistive materials been consistently used in those buildings, there would have been no loss of life, even though fires had occurred.

The newspapers of the country, through force of habit, looked for the cause of the tragedy in faulty fire-escapes, locked doors, and other superficial conditions. It would be as reasonable for a newspaper to report that a man, falling from a high building, is killed because no feather-bed was ready at the foot of the wall, waiting to break his fall.

The things that cause death in fire-traps are beyond the absence of proper means of getting people out; *they are chargeable to flimsy construction and to the housing of a large number of persons in buildings where fires, once started, out-sprint the victims in their race for safety.*

The exhaustive report of fire figures and the analysis of these figures to prove or disprove any theory will not correct these conditions.

And it isn't a commendable business for anyone to try to show that such conditions do not need correcting.

Questions and Answers

Here are Given the Replies Made by America's Best Authorities to Questions Asked by Our Readers

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held as confidential, and no letters will be forwarded them without being scrutinized by "Brick and Clay Record."

Red Flashing on White Tile

728. *Ontario—I have had a great deal of trouble from colored tile this summer. My clay is mostly white but the tile come out nearly all red. Break a chip off and inside it is burned white but the outside color is a red. I burn coal mostly and a little wood at times. Would wet coal produce this color? My first kilns and my last two kilns are white and we had no rain while burning them but we had wet weather for most of the others. What produces this stain? Would it burn off if the heat were raised higher?*

It is very probable that the trouble you are having thru your white tile taking a red flash, is due to insufficient watersmoking. The time that you are taking with your watersmoking may be sufficient under ordinary conditions but it is very probable that you have recently subjected your tile to conditions that could not be called ordinary. That is, you may be setting your tile wetter than you formerly did or you may be using wetter coal or—and this is a very good guess—your kilns have become saturated with moisture between burns.

We would advise you starting to overcome the trouble by:

1. Giving each of your kilns a thoro cleaning—seeing that all flues are not only cleaned but dried.
2. If you find that any of the flues are at all damp, look to your drainage; apply the same principles to your kilns that you recommend your farmer friends' applying to their marshy land—that is drain the moisture away from the kilns.
3. Arrange some way whereby your fuel will be kept dry; it is foolish to feed wet coal on to the fire that is watersmoking a kiln, as the steam simply retards the process that the coal is supposed to hasten.
4. During rainy weather give your tile a little extra time in the dry-room, and then set them as soon after they have come from the dry-room as you can, giving them as little time as possible to absorb moisture from the outside air.

There is so much reason to believe that what is written above describes the cause, the effect and the cure of your trouble that adding anything to it is almost superfluous but—

In order to be sure, we would say that there is a chance that your trouble comes from "flashing" and that this is caused by alternating oxidation and reduction; in other words, there is an alternating of the smoky fire and of the clean fire in the kilns. This flashing, however, will not show unless the ware is vitrified.

Clay Hoisting and Haulage

696. *Virginia—Please advise us the cheapest method of hoisting clay or marl thirty feet, from a point one hundred and fifty feet away, deliveries made to this point by a "two horse" drag scraper at regular intervals. We are contemplating changing from a conveyor to a car-hoisting system.*

With the meager information given, it would be manifestly unfair to all conveying, gathering and hoisting systems, other than one, to state that that one was the "cheapest." We would be glad to forward any letters that our readers or advertisers care to write to the above inquirer, if sent us in accordance with the conditions that appear in italicized type as a part of the heading of this department.

Separating Ochre from Fire Clay

723. *Illinois—We have a very good quality of white fire-clay over which there is a stratum of clay very rich in ochre. At present we are attempting to separate the ochre by means of an air-float, but this does not seem to answer the purpose, as the clay which is mixed in with the ochre grinds and rises with it in the floating process. Is there any method whereby we may obtain a separation of the clay and the ochre?*

There is, so far as we know, no process whereby an intimate mixture of clay and ochre may be separated—that is, a process that is sufficiently inexpensive to be a commercial proposition. The nearest approach is in the electrical purification of clays, a subject that has been given extensive study in England, and to some extent in this country; there is little reason to believe, however, that this would work with the mixture described in the question, and it would also be very expensive.

Wants Book on Hollow Clay Block

721. *New York—Have you any book on fireproofing—that is, on the manufacture of hollow clay blocks for building purposes? I am particularly anxious to secure some book that will give me some information regarding the making of dies.*

We do not know of any book that describes the process of making hollow clay building tile. Articles treating of the various processes of manufacture have appeared from time to time, notable among these being "The Proper Construction of Hollow Ware Dies" by Ernest W. Knapp, which appeared in the March 2, 1915, issue of "Brick and Clay Record." A comment upon this, with illustrations, appeared in the April 20, 1915, issue on page 776. Read these, and if they do not give you all of the information you require, let us know and we will do what we can to serve you.

Paving Brick Give Poor Rattler Test

729. *West Virginia—In the test of our pavers we have not, as yet, been able to reduce the rattler test to the desired per cent. We have a fine test on compression and absorption, but the abrasion is too great. Can you give us any information as to the proper amount of silicia or sand or other ingredients that should be used with the shale? We are making fine builders and our shales are the best obtainable, dark red and gray. Would ground sandstone give the same results as bank, or river sand?*

While "Brick and Clay Record" aims to answer inquiries wherever possible, this is a case where it feels that any answer it may give, other than that contained in the next paragraph, would be mere guess-work, and only entitled to the consideration due any decision that might rest upon the flipping of a coin.

Our advice is that you employ a competent engineer—a man who has made a specialty of paving-brick manufacture—and employ him for a sufficiently long time to enable him to watch your process of manufacture from the time the clay passes over the screen, up to the time when the kilns are unloaded. It should not take more than a month.

Now—as for the "guess." Our opinion is that you have been applying the same burning methods to your paving-brick as you did to your builders, and that you are neglecting the "annealing process"—the soaking in of heat after the kiln has reached its highest temperature, and before cooling is begun. Or it may be that your heat is intermittant—that your method of coaling your kilns causes a sharp drop in temperature at stated intervals. This has its effect upon the rattler test of the material.

Sand-stone, or very sandy shale, has been known to help the quality of ware previously produced from very plastic shale. Under heat, pure silica sand does not shrink or expand the same as burned clay. It is safer to use impure sand or a crushed sand-stone that will vitrify, at least to a certain extent, in the temperatures that are found in brick kilns.

Relative Merits of Dry-Pressed Fire Brick

712. *Missouri—I note that you carry a "Question and Answer" division and would like to make the following inquiries: 1. For what purpose is a dry-pressed fire-brick especially intended, and why is it a better brick for that use? 2. Would also like to ask the same question about stiff-mud fire-brick. What kind of fire-clays will make up the best rotary cement kiln blocks?*

Dry-pressed fire-brick are offered with success for annealing furnaces, combustion chambers, soaking pit furnaces, cupolas, checker-work for open-hearth furnaces, outside and inside liners of by-product coke ovens, for bakery ovens, stack linings and for kiln construction. They are preferred for these, and some other purposes, because of their perfect mechanical shape and uniformity of size, which permits of their being laid with close joints, and so giving a more uniform wall surface (from a physical—not necessarily visual standpoint). In addition to this, the granular structure gives a more uniform expasion and contraction thruout the individual brick and prolongs its life. It is more homogeneous in structure than brick made by either the stiff-mud or soft-mud process, lamination being absent.

Stiff-mud fire brick, repressed, or, as the trade terms it, "steam-pressed" are gaining ground in fields where a greater crushing strength is desired, as, for instance, the side walls of blast furnaces and malleable iron furnaces. The comparisons that are frequently made on dry-pressed building brick (surface clay or shale) and on stiff-mud brick made of the same material, finds an analogy here.

Instead of saying what kind of fire-clays will make the best blocks for lining rotary cement kilns, we will give you a typical analysis of a clay that has been successfully used for this purpose.

The fire-clay in question analyzes as follows:

SiO_2	53.28
Al_2O_3	41.95
Fe_2O_3	1.89
CaO	.58
MgO	.41
Alkalies	1.89

There doubtless are other clays with analyses that differ somewhat from the one given, that give equally good results from the purpose noted.

Ten Dollars for the Best Suggestion—

Beginning with the first January issue, "Brick and Clay Record" will discontinue the publication of tables in its Superintendent's department. What would be the very best thing to publish instead of these tables?

Ten Dollars in Gold to the Man Whose Suggestion is Adopted!

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Number of Acres from Which One-Quarter Inch in Depth of Water in 24 Hours Will be Removed by a System of Drains Whose Main is 1,000 Ft. Long, of the Sizes Given, and Laid upon the Grade Indicated. (Elliott.)

In laying a drainage system, care should be taken to see that the mains are of a sufficient size to take care of a maximum fall of water in twenty-four hours. It is obvious that if the capacity of the mains is not large enough to permit of this, the system is not filling the purpose for which it was intended, and it immediately loses the greater part of its usefulness. Maximum rainfall does not include unusual, infrequent or abnormal storms, but covers the heaviest rainfall which has occurred in the various sections of the country in years past. Just what this figure is for each locality may be obtained from the United States Department of Agriculture.

The table given below shows the number of acres which will be drained by various sizes of mains at certain grades, when the rainfall is one-quarter inch in twenty-four hours. Where the maximum rainfall is found to be more or less than this figure, the multiples in Table II may be used in arriving at the correct answer. It is assumed in these tables that the laterals are of sufficient size to convey the maximum rainfall to the mains, without delay.

TABLE I

GRADE PER 100 FEET IN DECIMALS OF A FOOT (WITH APPROXIMATE EQUIVALENTS IN INCHES)

Diameter of Tile in Inches	0.04 (½ inch)	0.05 (⅝ inch)	0.08 (1 inch)	0.10 (1 3/16 inch)	0.12 (1½ inch)	0.16 (2 inch)	0.20 (2⅜ inch)	0.25 (3 inch)	0.30 (3⅝ inch)	0.40 (4⅝ inch)	0.50 (6 inch)	0.75 (9 inch)
					Acres of Land Drained							
5	17.3	17.7	19.1	19.8	20.6	22.1	23.5	25.1	26.7	29.5	32.0	37.7
6	27.3	28.0	29.9	31.2	32.5	34.8	37.0	29.6	42.0	46.4	50.5	59.4
7	39.9	41.1	44.1	45.9	47.7	51.1	54.3	58.0	61.6	68.2	74.0	87.1
8	55.7	57.3	61.4	64.0	66.5	71.2	75.6	80.9	85.8	95.0	103.3	121.4
9	74.7	76.5	82.2	85.6	89.1	95.3	101.4	108.4	114.9	127.0	138.1	162.6
10	96.9	99.5	106.7	111.2	115.6	123.9	131.6	140.6	149.3	165.2	179.2	211.1
12	152.2	156.1	167.7	174.8	181.7	194.6	206.8	221.1	234.5	259.2	281.8	331.8
14	222.8	228.7	245.3	256.1	265.8	284.9	302.5	323.5	343.5	379.7	412.9	485.8
16	310.2	317.8	341.4	355.4	369.5	396.3	420.6	449.9	477.4	527.8	573.7	675.2
18	414.4	424.9	456.4	475.7	494.4	529.1	562.2	601.8	638.1	705.2	767.4	902.3
20	537.6	551.6	591.5	616.4	640.4	686.3	729.2	780.0	826.9	914.7	994.5	1,170.1

TABLE II

Where the annual rainfall is 25 inches multiply acres in table by 1.4
Where the annual rainfall is 30 inches multiply acres in table by 1.2
Where the annual rainfall is 50 inches multiply acres in table by .8
Where the annual rainfall is 55 inches multiply acres in table by .7
Where the annual rainfall is 60 inches multiply acres in table by .6

Divide the Responsibility

On a large number of clayworking plants, the superintendent is a one-power man. Where this is the case, it is suggested that he choose a man—one who perhaps has shown a little more initiative than the others in his department—and upon him place some of his (the superintendent's) responsibility, being careful not to unload too great a burden upon the man's shoulders at once, because he will not be able to carry it. Rather give him a little at a time, like you would feed a baby, and after a while you will get up to the "bread and cake" stage.

If you can take two men that way, and not one, so much the better. Your sight is pretty good if you can take two men out of your organization and divide responsibilities with them in their respective departments. It proves that you have selected some pretty good men to start with.

And see to it that they carry that responsibility. And aid them. Your job is to aid. Your job is not to work so much with your hands but rather with your head. When you work with your hands you will earn fifteen or twenty dollars a week, and what right would you have to draw more? You are holding yourself and your business down when you do that.

Increase of Low-Freezing Explosives

This increase has been due to increased demand following the successful and efficient use of the first low-freezing grades, reducing or eliminating thawing costs and thawing accidents, and expensive misfires due to chilled explosives.

Now is the time to adopt low-freezing grades, if you are still using the higher freezing types. The increased cost of explosives may be largely or wholly offset by the material economies in time, money, and labor resulting from the use of low-freezing grades.

While their good points are most apparent in cold weather, the majority of users prefer them all the year, as they are always safer to use than straight dynamites, because less sensitive to the accidental shocks of handling.

Winter Care of Rubber Tires

If a car is to be out of service several months during the winter, it is advisable to jack up the wheels and let most of the air pressure out of the tires, says R. A. Leavell, automobile expert at Iowa State college. Just enough air should remain to prevent the inner tubes from flattening, as they might crack when pumped up again in the spring.

If the car is to stand some time on pumped up tires, it should be moved occasionally, so that the tires will not become flattened from resting on the same place. It is better, however, when the car is not to be used in the winter, to remove the tires and wash the casings with soap and water.

Bits of stone, wood, metal or glass should be picked out of the treads and any small cuts sealed with a special preparation, or vulcanized. They should then be wrapped and stored in a cold, dry place. The rims should be straightened, cleaned and varnished.

If spare inner tubes are to be out of service for several months, inflate them enough to round them out well and hang them up, rather than leave them folded, to eliminate danger from cracking.

An Important Correction

We are indebted to A. F. Greaves-Walker, of the Sun Brick Company, Ltd., Toronto, Ont., for the following correction:

"I should be very sorry for anyone who used the figures given in the elevator table in the Superintendent's Department of the October 5 issue. For instance, in the 5½ by 12 elevator the speed is 200 ft. and the head pulley 18 in. in diameter; such an elevator would throw half of its load into the air, as each bucket struck the head pulley."

On another page of this issue will be found an article written by A. F. Greaves-Walker, and in which an improved and eminently practical elevator is illustrated. In connection with this he says:

"The one I describe is the result of experiments covering about ten years, and for several years I was assisted by one of the foremost elevator experts in the country. Two that we have installed here (Sun Brick Company) give so little trouble that we hardly know we have them. Knowing how troublesome the average elevator is, I should like to have your readers get the 'dope' on this one particularly before them. It is surprising how very little actual data is available in clay plant elevators. Even elevating engineers seem to have but little data, altho they know all about hoisting other materials."

Provide Reliable Power

In deciding the question whether to buy or make electric power, says "Factory," one of the most important factors to consider is reliability. The brick manufacturer who operates his own power plant always assumes certain risks which are in no way covered by insurance.

If the plant breaks down, compelling a cessation of operations in part, or all of the factory until repairs can be made, the business incurs a loss against which no form of protection exists. To be sure, with purchased power the same contingency is still present.

As two independent sources naturally are more reliable than either one alone, it may be the wise policy to buy, as well as make power, even though the conditions in your case enable you to produce more cheaply than the central station can deliver. When the bought current is used for lighting only, it is well to have feed capacity and connections such that in emergency the entire plant can quickly be shifted to the outside source.

Keep Bearings Clean

In a clayworking plant the presence of a mixture of dust and grease is more general than in most other industries, and more serious, because getting into the bearings, it wears them, with a sort of grinding action; this makes it desirable to watch the lubricated parts with particular care to see that they are kept properly clean.

The waste of oil that takes place in many plants is enormous. Only recently a case was discovered in which the amount of oil used for the engine was so large that it was difficult to understand how the lubricated parts could hold it. A slight examination soon showed, however, that owing to the engine being choked with dirt and oil, no real lubrication was effected, and all the oiler did was to pour oil into the small space still unclogged, allowing it to flow over the shaft and down into the lower parts of the machinery, with the result that a pool of oil was found in the basement. On taking off the bearings, they were found to be in a state of corrosion simply because the man in charge had not been sufficiently observant, tho he could not be charged for being sparing with oil. At the same time, oil in the wrong place in useless and may be even harmful. The remedy is simple. Watch the bearings and keep them clean.

Germans Oppose Government Clay Plant

German brick and tile manufacturers are wrought up over the action of the government in establishing a large plant for the manufacture of brick and tile in East Prussia, according to recent newspaper dispatches. The manufacturers claim that in these times, when the industry is suffering on account of loss of business occasioned by the war, the government should not start competition, for they consider that the production of government made material, supplied without profit or even donated, would amount to competition.

The manufacturer's association has filed a protest with the Minister of the Interior. The demand for building material in East Prussia has increased enormously. Even before the war there was a strong demand for building tile in that district, but since the destruction of the Russian invasion the necessity for replacing so many buildings has made the demand steadily increase. It is estimated that the Russians destroyed 30,000 buildings. The rebuilding of East Prussia could be promptly started, as Russian prisoners of war are available for this purpose.

The Salesmanager

A Department Devoted to the Marketing of Burned Clay Products—Particularly Those That Enter Into Building and Road Construction, Sewers and Farm Drainage

CONTRIBUTIONS TO THIS DEPARTMENT are solicited and will be printed with or without the name of the contributor, as he may wish. A year's subscription to this magazine or a check for two dollars will be sent for each item that is accepted.

WHEN ONE MAN can keep a plant running and sold up in a territory where all others in the same industry are failing to do a profitable business he must be employing different measures to move his ware. In the southern part of Illinois conditions are undoubtedly very poor for the small operator in drain tile. Supply exceeds demand. Business needs coaxing.

Not being content with just making tile and then waiting for the farmers to drive up and call for it, this one man saw not only an excellent proposition for giving additional impetus to the use of his product, and consequent larger sales, but an opportunity of making a second profit. Having in his employ a man capable of drawing the maps, profiles and sketches of a drainage job, and of drawing up estimates of the size and number tile required, he purchased a ditching machine and went after contracts to lay the tile.

A standard price was charged for laying every rod of the same sized tile, a certain depth; that is, the price per rod for each foot in depth of four, five and six-inch tile is 10c; for seven and eight inch tile, 12c; ten inch, 15c; twelve inch 18c. Special prices are given for all big tile and for excavating and cutting trenches more than five and a half feet deep.

This man has created enough new business in his section, to enable him to run full, when competitive plants have been compelled to close. His story, therefore, carries a lesson for other tile manufacturers troubled with stagnant business.

Almost every rural community has at least one man who is interested in public service work, who owns a threshing machine and makes the rounds of the farmers' barns every year. If it were possible to get this man to handle ditching and tile laying (which should not be hard to do since the field is bound to be worth working) it would mean the elimination of an obstacle that stands in the way of every big tile job, namely, the fear of improper laying.

In the case of the manufacturer in southern Illinois, a man was found, right on the plant, who understood the engineering problems attendant upon the proper placing of the tile. All manufacturers are not so fortunate; but this need not deter them from a consistent search after the proper men and the proper equipment to enable them to tell the farmer that his land can be tiled for a certain sum, and that, if necessary, the tile manufacturer will take the contract to do the work, and do it correctly for the amount named.

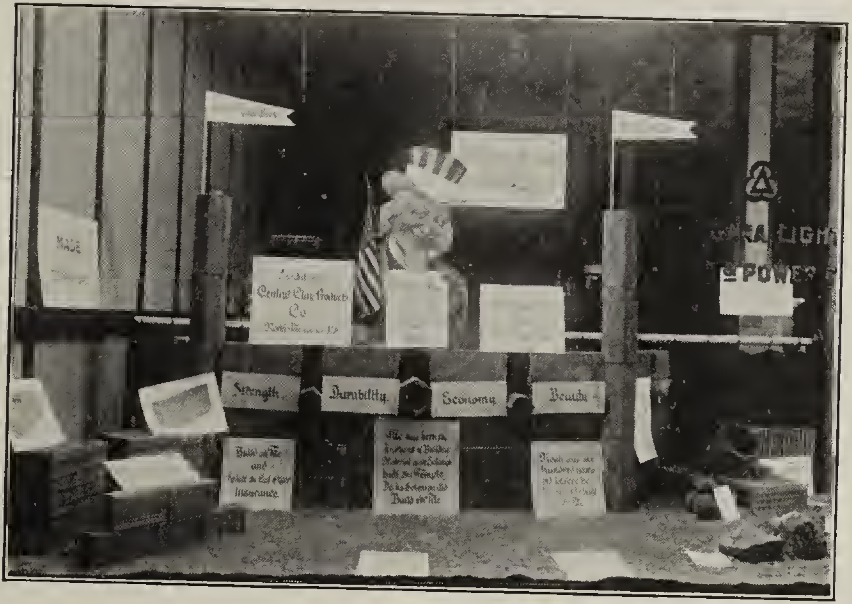
Silo Block at County Fairs

Every county fair should have its silo demonstration and, where possible, some arrangement should be made so that competing types of burned clay silos would not take business from each other; it would be better if an agreement could be reached whereby one type of clay silo would be shown at one county fair and another type at another. This would give the clay silo man an opportunity of expending all of his arguments against silos of distinctly inferior construction—wood, metal and concrete—instead of having to spend part of his time telling how much better his particular type of clay silo was than someone else's clay silo.

"Acres of Diamonds in Our Back Yards"

H. Jason Knapp, president of the Central Clay Products Company, of North Tonawanda, N. Y., sends the photograph from which the accompanying illustration was made, and an explanatory letter, which in part reads:

"Our local gas company moved into a new office with a good display window facing a busy street, and surrounded by stores that had various kinds of wares displayed in their windows.



Window Display Made by a Manufacturer of Burned Clay Building Materials Who Co-operated with a Local Gas Company

"After some deliberation and some consultation with local manufacturers, the management of the gas company decided to allow this window to be used, without charge, by the leading manufacturing interests of the city, allotting one week to each manufacturer.

"This made it possible for some of our manufacturers to make displays in the business part of town that would otherwise have been impossible, and the fact that so many of them followed each other in their occupancy of the window space, made considerable competition.

"This company used its U. S. Government Test as a central point in its display, and we have been assured that ours was not the least attractive of these local 'window shows.'

"I am mailing you a photograph of our display, so that you can see that the clay man was on the job with an attractive display, and assure you that, as a result of this, we are getting lots of inquiries, and some orders locally, which means a lot to us, *for this is a lumber city*, and tile was an unknown quantity here until we commenced to manufacture burned clay building materials less than two years ago.

"Our local paper gives, a nice little write-up about each display, and the gas company has photographs made, copies of which are sent to New York City, for publication in a paper published in the interest of the gas company.

"While this detail may not all be of interest to you, we think it shows what can be done, along a comparatively new line of publicity. The point is—avail yourselves of the chances that are all around you. There are 'acres of diamonds' in our own back yards, only waiting for us to begin digging."

The Folly of "Dumping"

The folly of dumping surplus stock, or, as it is more politely called, "going out and getting orders at any price," is given entirely too little consideration by the men who find it an almost annual occurrence. Prices are easily beaten down—it takes a long time to bring them up again.

The "dumping" process is the acme of selfishness. It spells panic. It indicates the lack of lime in the backbone of the guilty man.

It takes a concern with some moral fibre to close down when stocks have accumulated to the danger point, and to hold on until they can be moved at a profit. Any kind of a concern can "sell" its surplus by giving it away.

The day of reckoning comes with the return of demand. The man who has sold cheaply has a reputation for cheapness. He is the last to share in the upward trend of prices.

The Unpleasant Truth in Advertising

Manufacturers frequently write letters broadcast to users of their product, inquiring about the satisfaction it is giving to those who use it. They ask for (or intimate) that they would like to have a statement that could be used in their advertising literature.

Sometimes, circularization of this kind unearths some instances of dissatisfaction, and the man who was expected to write a complimentary letter, writes something that is much more valuable, even tho it does not seem to lend itself to the original purpose.

Keeping such replies out of print is not always advisable Printing a few—to "leaven the lump"—would bring conviction to the reader, especially if the complaining letter were printed with an explanation. It seems hard to do—but it is better to tell it yourself than to have a man wonder whether you are giving him both sides. The advertiser "sticks to the truth" but he does not always stick to all of the truth.

If the manufacturer said: "Here is a batch of letters just as I received them"—and printed the good and bad together, he would command an attention that would not be accorded the ordinary advertising effort.

The poor performance of any product may be due to poor quality, and may just as easily follow poor management. Where the latter is the case, it can be pointed out and save other users from condemning the material because they do not correctly use it.

The principal reason why advertisements are sometimes read "with a grain of salt" is that they are generally too one-sided.—N. G. Near.

Where Common Brick Overlooks a Bet

The man who is convinced that he should and can use brick veneer on his new home, is more than half-way convinced that brick is a good building material. He has accepted the argument that there is a certain economy in using brick, that there is a certain beauty in brick construction, that the *appearance* of a brick house is better than that of one which is entirely frame, or which is plastered over with cement stucco.

In many instances, this partial conversion from frame to brick is made by the man who wants to sell the face-brick and who, believing that the owner feels he cannot afford to build an all-brick house, puts his entire effort on inducing him to use a face-brick veneer.

This line of education may have been conducted in the office of the architect, or it may have been handed to a speculative builder, who agreed with the salesman that face-brick veneer gives the semblance of solidity, fire-safety and all of the manifold virtues of solid brick construction.

The manufacturer of common-brick ought to have very little difficulty in convincing these half-convinced owners, architects and builders that while they may be deceiving the public as to the real character of the construction they are using, they do not reduce their fire-risk, nor their fire-insurance premium. A frame-built, shingle-roofed, face-brick veneered residence is a "bluff." The common-brick man should be the first one to "call" it.

Advertising "On the Job"

Every brick peddler has, at some time or other, nailed a sign on some new building, stating that the brick in that particular structure was "furnished" by him. These signs do some good—they answer a question, in case one is asked. They do not, however, qualify with the modern ideals of outdoor publicity.

A much more effective use of the inherent advertising value of anything that typifies activity—which is life and action—in a city's streets, has recently been developed in connection with the erection of a large building. No sooner had the foundations been built, and the enclosing fences and temporary board-walk installed, when two large, painted signs made their appearance, each turned toward one of the streets upon which the building faced. At the top of each sign the owner's name was painted, and below it, the names of the architects and of the general contractor.

Below that the sign was divided into two columns, one for the names of work or material (as "Masonry" or "Plumbing" and "Face Brick" or "Hollow Tile") and the other for the names of the sub-contractors, and of the firms supplying the material.

The idea originated with the general contractor. He paid for the signs, and for the work of painting in the name of the men who were successful bidders on the various subcontracts. It is easy to imagine that the signs were excellent investments.

That they attracted attention is beyond question. Day after day, passers-by stopped to read all the way down the gradually growing list. One man after another commented on the multiplicity of materials that were necessary to make a building. The signs were object lessons in the intricacy of building operations.

The building was important. The earlier contracts were all let to representative firms in various lines. After that, prominent firms in other lines, whose materials only came into use as the building progressed, felt that they could not afford to be out of that list. The chances are that they sacrificed something to be publicly seen in such good company.

We Need Help! S. O. S.

Send us a suggestion or two embodying some good sales-help. This department is going to publish something, some day that will make money for you

Keep it Going!

Machinery and Equipment

In This Department We Give Descriptions of Such Machinery and Accessories as Our Advertisers Have to Offer, or Make Such Announcements as Are of Interest to Our Readers

ON THE RARITAN RIVER, three miles inland from New York Bay, in the town of Keasbey, New Jersey, near the boundary line passing between that town and Perth Amboy, is the large modern brick plant of the Didier-March Company, says John A. Randolph, of the Society for Electrical Development, Inc. This plant is especially noteworthy on account of the high efficiency and economy that has been achieved through up-to-date methods of manufacture, well developed working systems and able executive management.

Courtesy General Electric Company

Induction Motors Driving Dry Pans. Note the Metal Encased Link-Belts

As an inevitable outcome of the company's progressive policy, every wheel, in the place is turned by electricity and every square foot of working space is lighted by electric lamps.

The products of the plant consist exclusively of refractories —fire-brick, blocks, tiles, gas retorts and silica brick. By reason of the location, the company is enabled to conduct its shipping and receiving both by rail and water. Sixty-five per cent of this business is done by boat and the remainder by rail.

The plant was originally driven by steam, but in 1911 was changed over to electric motors and this form of drive is now employed thruout. Central station power is supplied by the Public Service Corporation of New Jersey.

The electric current, as delivered, is two-phase alternating of 60 cycles frequency. It is transmitted to the plant over a pole line at a primary voltage of 2,300. At the plant it passes through transformers which step-down the voltage to the lower values used for the motors and lights. By means of the so-called "Scott" connection of the transformers, the current is changed from two-phase to three-phase. The voltage used on the motor circuits is 440 and for the lights, 110.

The average total amount of electric power per month used during the summer season for the motors is 60,000 kilowatt-hours. The monthly consumption of current for the lamps during the same season is 651 kilowatt-hours. The maximum average summer power demand for the motors is 270 h.p.

For transforming the current used for the motors, ten General Electric 100 K. V. A. transformers are used. For the lighting system, two General Electric 10 K. V. A. transformers have been installed. The transformers are contained in a small sub-station joined to one of the main buildings.

A systematic and efficient system of distribution of the current to the various departments is made possible by a large black slate switchboard located in close proximity to the substation. Feeders run from this switchboard to every department of the factory. Each feeder is protected by an automatic carbon circuit breaker mounted within convenient reach on the board. Other apparatus with which the switchboard is equipped, comprises instruments which keep an accurate record of all current used, together with the voltage. Two recording voltmeters register every fluctuation of the supply voltage and a graphic wattmeter records all variations in the amount of power that is being consumed. Several recording watt-hour meters integrate the power consumption and give accurate indications at all times as to the total amount of watt-hours that have been consumed on the various circuits to which they are attached.

The provision of the extensive equipment of recording instruments on the principal electric circuits is another example of the excellent system maintained by the company in the operation of its plant. By means of the instruments, it is possible to keep detailed records of the power consumption of the various departments and to figure the costs and plot curves accordingly.

The feeders running from the switchboard to the different departments are carried in iron conduits.

A total of 24 General Electric induction motors of an aggregate horsepower rating of 792 is used for driving the various machines. The motors range in size from 5 h.p. for the smallest to 150 h.p. for the largest.

Four methods of power application are used—the Link-Belt silent chain drive, the leather belt, the direct coupled and gears. Starting compensators are used on all the larger motors.

The plant is lighted throughout by electricity. Most of the lighting is done by incandescent lamps of the Mazda tungsten type, the ratings being, according to the various requirements 25-40-60-100 and 250 watts. In addition to the Mazda tungsten lamps there are two high candlepower Type C Mazda lamps and a number of General Electric flaming arcs. The company believes in the "Safety First" idea and have reduced to a minimum the likelihood of accidents which might occur were the place inadequately lighted. They have wisely concluded that with plenty of light they can maintain a higher degree of efficiency in their workers than with fewer lamps, thereby more than offsetting the cost of the extra lighting.

Everywhere thruout the plant a wide range of flexibility in the operation of the machinery is apparent. Obtaining power from numerous electric motors renders the various departments, machine units and groups independent in their operation. There is therefore little power wasted through the operation of idle shafting, belts and pulleys, when it is desired to operate but a few of the machines. The driving agents in all cases are near the machines, connected with them, thereby eliminating any necessity for expensive power transmission systems.

The extensive use of chain drive on the larger motors of their plant is highly commendable. The flexibility of the chains relieves the motors from the heavy shocks which would be encountered with direct or geared connections in this class of work. Very close centers are obtained, giving a better arrangement of machines in a minimum of space. Larger speed ratios than are practical with ordinary belts are also made possible. The efficiency is approximately 98 per cent at all times, which is considerably higher than that obtained with belts. All of the chains are enclosed in dust and oil-tight casings for protection against the gritty atmosphere.

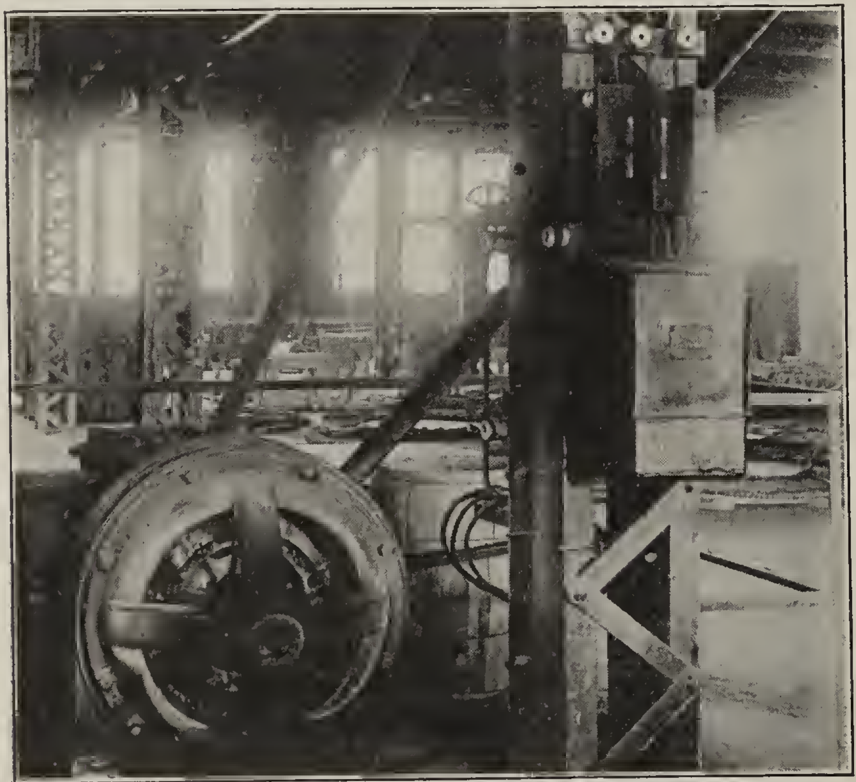
The motors, for the most part, are installed in locations such that they do not occupy any space which would be useful for other purposes. They are simple and strong in construction, and have few moving parts. But little expense and inconvenience is therefore incurred for repairs and maintenance.

Super-Heating System

It has been demonstrated, by careful tests made by experts, that the loss of fuel in down-draft kilns, through radiation of heat from the crowns and walls of kilns, is about 50 per cent. The greater percentage of this loss is through the crown of the kiln.

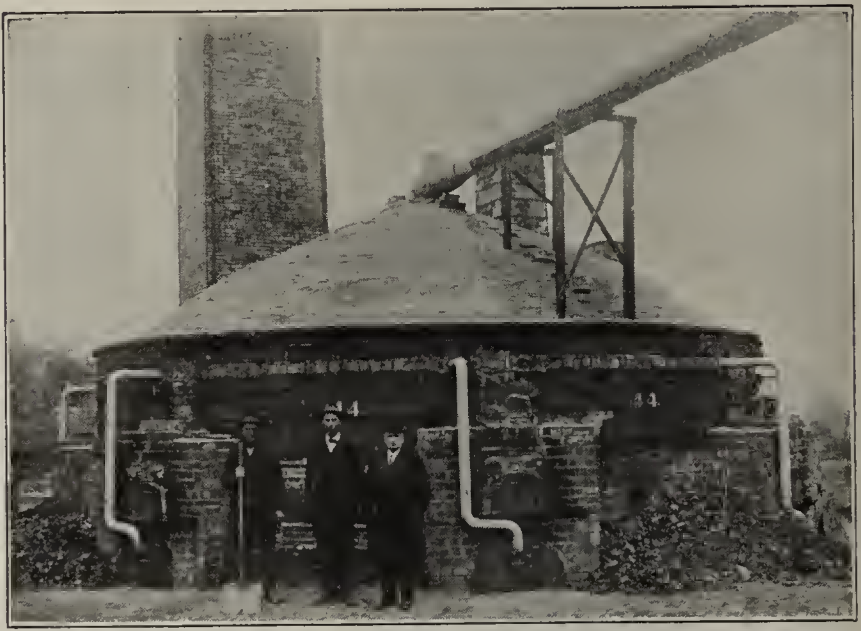
The use of the device shown in accompanying illustration will reduce this loss from 25 per cent to 30 per cent, thus preventing the waste of fuel, and very materially adding to the life of the kiln.

The kiln shown, and on which this test was made, belongs to the Hocking Valley Brick Company, of Logan, Ohio. It is a round, down-draft kiln, 28 feet in diameter, equipped with eight McManigal Grateless Furnaces and the super-heating system. The result of this burn was a saving of 28 per cent in fuel and one day in time. A pyrometer was attached to register the heated air taken from between the crowns and showed a temperature varying from 540 to 690 degrees F. The larger the kiln, the greater this saving will be, because of the larger surface for radiation. The system can be adapted to kilns where gas is used as well as coal, and to rectangular as well as round, down-draft kilns.


Courtesy General Electric Company
Motor Driving Grinding Machines at Didier-March Plant

The additional crown can be built of common building brick, or other material, and will protect the lower crown from the serious loss of heat and from the wear caused from weather conditions. For instance, very often considerable damage is caused by a heavy snow or rain-fall when kiln is on high heat. This extra crown eliminates that danger as well as being instrumental in saving heat.

With this device the McManigal Furnace should be used with closed doors, so as to prevent the outside air from interfering with the temperature. The heated air from top of kiln, being forced from space between crowns into the furnace, opposite bag wall, will make combustion more efficient, as air at approximately 700 degrees F. will be used instead of atmospheric air at 70 degrees F.


Kiln Equipped with McManigal Super-Heating System

On the other hand, the crown of the kiln cannot be overheated, as the cold air brought in from the outside by the fan, at the apex of the crown, reduces the temperature at that point, but this same air, passing down the crown becomes heated and attains a high temperature by the time it enters the furnace, thereby producing more perfect combustion.

For further particulars, address R. D. McManigal, manager, Logan, Ohio.

How to Ship Samples

One of the fundamental principles of scientific agriculture is that good seed must be planted. Thoro soil preparation and expensive facilities for tilling and harvesting are alike useless if the seed sown is infertile. Every practical farmer knows this and profits by the knowledge and it would be surprising indeed if intelligent and energetic manufacturers and business men were not equally keen on the application of the principle to the cultivation of that tender plant, a profitable and growing trade.

Take the case of the brick manufacturer. He fertilizes his soil by perfecting his product. He plows it deep by field work which locates every possible prospective customer; and harrows it by following up these prospects attentively. By careful study and expensive installation he has already insured minimum cost and maximum output and thus prepared himself to gather a bountiful harvest.

Now comes the seed. If the samples he sends out are right and if they arrive in good condition he will have sown good seed on fertile ground. But if he is too busy about the big matters of cost and production to give deserved attention to the packing and shipping of those samples, he will too often find his expected crop of business a failure.

For a good many months this magazine has carried the modest advertisement of a concern that makes and sells a special style of shipping box for sample brick. The box comes folded flat, and is made of corrugated fibreboard, which, by the resiliency of its cellular construction, cushions

Showing one of the Hinde & Dauch Paper Company's Plants, Storage Yard, etc.

its contents and prevents the breakage or chipping of the samples.

The manufacturer of this box, The Hinde & Dauch Paper Company of Sandusky, Ohio, reports excellent results from its advertisement and finds the demand for brick boxes steadily growing thru the entire satisfaction they have given their many users.

The company is equipped to furnish promptly boxes in any required quantity for any standard or special size of brick, provided the dimensions and quantity per package are stated in the order or inquiry. It owns and operates a number of widely distributed mills and factories and is thus prepared to fill its orders at the nearest plant.

The illustrations shown here show some of the plants and processes by which the H. & D. Corrugated Fibre Sample Brick Box is made and delivered to its users. They serve to show the magnitude of the industry and the facilities of the manufacturer to make prompt shipments.

The Hinde & Dauch Paper Company manufactures shipping cases for a great many purposes and turns them out by the million. The reader will agree with us that this immense output is pretty fair proof of high utility and unfailing supply.

Important Installations Made by Stevenson

Although The Stevenson Company, of Wellsville, Ohio, admit that the year 1915 has not been as good as some others, they say their plant has been in operation 85 to 90 per cent of capacity, and they have installed some very important equipments. The most significant of these, perhaps, were those made in Akron and Toronto, Ohio. Step by step Robinson and Company, of Akron, have been Stevensonizing all their plants, each installation increasing their enthusiasm for this line of machinery until now they are practically Stevenson to a finish. During the year they pulled out the old pans and presses at their Parral plant and installed six heavy-duty dry pans, four twin 9-foot wet pans, two 40x52-inch presses, two clay conveyors and over a dozen elevators —all Stevenson make.

A short time before, recognizing the standard being set by the Robinsons, the Buckeye Sewer Pipe Company, of Akron, equipped their new plant with two heavy-duty dry pans, four 9-foot wet pans, one 40x52-inch press, four elevators and two conveyors of Stevenson's make.

The Granite Clay Company, of Mogadore, Ohio, office in Akron, is just now installing two heavy-duty dry pans from Stevenson's shop, displacing other make.

Maurice A. Knight, also of Akron, has just equipped his plant with a fine 40x52-inch sewer-pipe press, Stevenson's construction.

Herman Schneider, of New Philadelphia, Ohio (a neighboring city), is constructing a complete one-press plant, and has contracted with the Stevenson's for the full equipment.

The Peerless Clay Manufacturing Company, composed of Toronto, Ohio, veterans in the sewer-pipe business, is building a fine two-press plant at Port Homer, Ohio, with wet and dry pans and elevators from the Stevenson shop.

Crescent Belt Fasteners

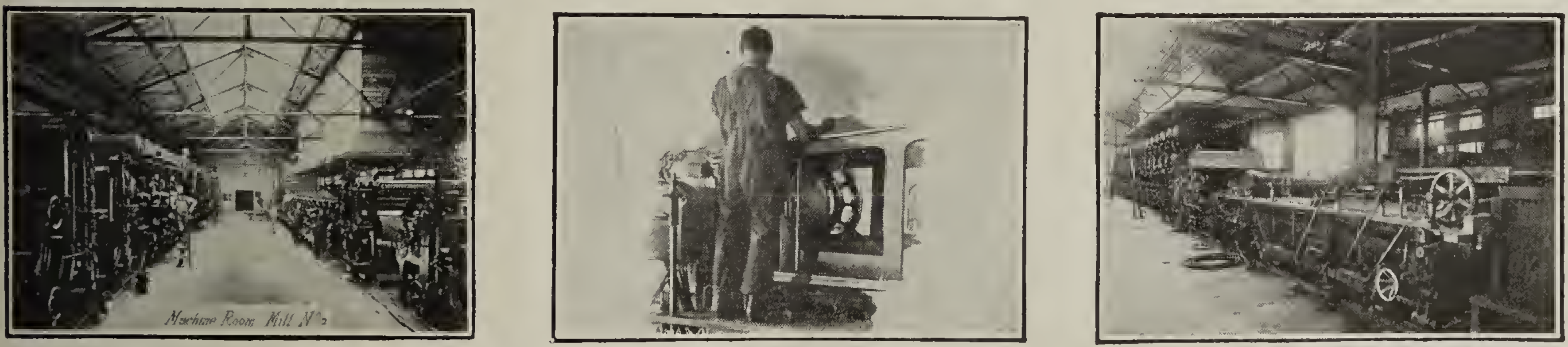
These fasteners are designed for all around efficiency and economy. They are made in several sizes, each suited for certain belts and conditions of work.

The principle of the Crescent method is the employment of a Crescent plate covering the joined ends of a belt and fastened with Crescent rivets. Crescent rivets are so constructed as to remove no material from the belt. They have two prongs which are driven to clinch *across* the belt, thus merely separating the lengthwise fibres of the belt material.

The Crescent plate is cambered to conform to the curve of the pulley and embossed in order that a closer grip on the belt may be had and a lighter plate used than would otherwise be possible. There is a reverse camber on the lateral edges to allow for the rock of the fastener as it leaves the pulley.

This fastener has an unusually fine application in the clay-working industry where the efficiency of a belt fastener is put to such a severe test.

Crescents are made to give a joint which invariably lasts longer than the belt on any open, quarter, or half-turn drive. Perfect satisfaction is guaranteed by the makers. The device is manufactured by the Crescent Belt Fastener Company, 381 Fourth Avenue, New York. There are branches in Birmingham, England, and Toronto, Canada.



Views of the Hinde & Dauch Paper Company's Machine Rooms, showing their Corrugated Boxes in Process of Manufacture.

The Semi-Monthly Trade Review

With the holiday season fast approaching, the improvement in business thruout the United States is assuming cyclonic proportions.

For the past three months, increased activity in industry and commerce has been very noticeable, almost every day bringing news of a pronounced advance in one line or another. September and October will long be remembered for their surprising and gratifying showings in the onward march toward prosperity, but the month just closed surpasses all previous records for business expansion, some of the trade developments being unparalleled in the history of this country.

While the interesting events of the past month, from a business standpoint, are many, two stand out above all others in significance and fundamental soundness. The first is the phenomenal growth of new building construction, of which Chicago seems to be the center. All thru the Central West building operations show a decided improvement for November, and along with them, business in the building supply lines has taken an upward trend. The gain in Chicago alone in building permits for the eleventh month exceeded $5,700,000, while there was more than a $10,000,000 increase in the Chicago district.

In Boston the weather has favored building operations, and outside work is extensive, showing a large increase over the records of earlier months this year, while in Springfield, Mass., building and real estate operations are reported as continuing active, there being numerous projects of considerable size under consideration. Steady improvement was noted in Philadelphia in the building trade during the last two weeks in November, present and prospective construction being well above that of last year. There is considerable activity apparent in real estate and building in Baltimore, while St. Louis reports a similar state of affairs. Detroit architects and builders are unusually busy for this time of the year, and the outlook for the coming season is looked up as being very encouraging. In Kansas City, Mo., more building and construction work is being carried on now than at any other time during the year. And so, down the roster of America's leading cities, the same improvement, the same healthy expansion in building is reported. There is hardly a locality that does not show a gain—a few small, but the greater part of substantial proportions.

The second development of superior importance is the remarkable increase in railroad revenues, which have suddenly assumed a decisive upward trend, in marked contrast to conditions existing but a few months ago. The

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G & S PRECIPITATED CARBONATE OF BARYTES
We are now able to ship promptly from our new factory in New Jersey. The war no longer troubles us.
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Our business is diagnosing and remedying
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of manufacturing for the Clayworker. If you are experiencing loss in any department, mechanical, drying or burning, consult
H. & B. COPPING, Kankakee, Illinois
We personally do the work.

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Excessive Freight Rates
The development of every clayworking plant largely depends upon the extension of its market. This depends, in turn, upon its ability to secure freight rates that are fully as favorable as those enjoyed by its competition.
Car service, switching charges, loading rules and the like all have a bearing on the cost of transporting material from the plant to the consumer.
These are matters that are scientifically handled by myself and the force that works with me. Correspondence is invited.
IRWIN W. PREETORIUS, Freight Traffic Counselor
2101 Transportation Building, Chicago, U. S. A.

Ricketson's Mortar Colors
Pure, brilliant in tone, economical in use, absolutely reliable and a permanent guarantee against fading and washing. Why not insist on having them?
Red, Brown, Buff, Purple and Black
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BRICKMAKERS' HEADQUARTERS
FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
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SAY I SAW IT IN BRICK AND CLAY RECORD

gross revenues of systems reporting for the first two weeks of November disclose an increase of 15.9 per cent over the same period in the preceding year. In fact, the heavy traffic on all of the eastern roads has been such as to cause an embarrassing congestion of freight along the Atlantic seaboard. Several of the roads have declared embargoes on freight consigned to certain ports, until the large accumulation of freight can be disposed of by the carriers.

Inadequate ocean shipping facilities have helped considerably in bringing on this congestion, not enough vessels being available to handle the unprecedented rush of merchandise for Europe.

According to export figures for October, which were made public during the last week in November by the Bureau of Foreign and Domestic Commerce, a new high record was established, the total rising to $334,638,578, or $33,961,756 above the former record made in September of this year, and comparing with $194,711,170 in October, 1914. The present unmatched development in oversea commerce is aided by the greater stability of sterling exchange, due to additional foreign credits in this country.

CAPITALISTS INVADE FOREIGN MARKETS

But this is not all. Steps are now being taken by important financial interests looking toward the establishment of American merchants in foreign markets so that the present boom in that direction will become a permanent part of the nation's business when complications across the water will have been adjusted.

"The United States is and will continue to be the dominant factor in international business from now on," said Joseph Davies, chairman of the Federal Trade Commission, recently in an interview in Chicago. "It is something more than the result of the war, too. But the war has hurried us up. As *the* great neutral nation, we will get the greatest advantage from a war of other leading nations. I am drawing upon an unbroken line of precedent for this conclusion. But the United States is bound to lead from now on, because, first, we have the largest portion of the gold supply of the world. We have, in fact, one-fourth of the world's gold supply, and we have only one-eighth of the population.

"In the second place, the country is thoroly co-ordinated and equipped to hold its own in the competitive period that is to come. Then the business men of the United States are peculiarly intelligent and aggressive.

"Finally, I think that the statesmanship of the country is thoroly interested and is preparing the way for commercial victories for the business men. Everybody is friendly to business extension."

Steel quotations still continue to soar, with much of the production being concentrated on domestic demand, while the rise in commodity prices remains unchecked, sixty-two products gaining in value during the last week in November. Bank clearings for the same period continue to reflect business activity, the total for that week in the principal cities of the United States amounting to $3,192,278,075, an increase of 71.9 per cent over the corresponding week last year, and of 34.5 per cent as contrasted with the same week in 1913.

But what about the clay products manufacturer? How do these conditions help the sale of his brick, hollow-tile or other burned clay wares?

The above high lights from the existing trade boom have been enumerated to show how well founded is the

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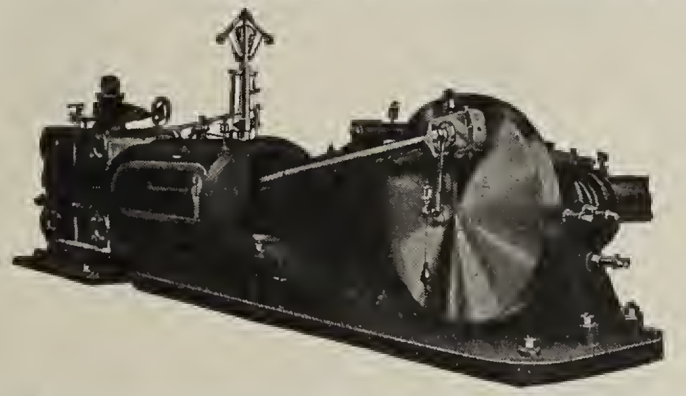

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You insure your plant against loss by fire. Why not insure your brick against loss through incorrect pyrometer readings. THE STUPAKOFF STANDARD LE CHATELIER PYROMETER. Write for a copy of "Pyrometer Facts."

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For Cutting or Screening use wires that are twisted, wrapped and soldered

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Increase the Sale of your Output

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As required for BRICK MAKERS USES.

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present prosperity wave that is rolling over the United States. With the very foundation of industrial and commercial activity in so healthy a condition, there is little to fear in the way of a reaction from the present boom. Everywhere business men are planning new enterprises involving new factory buildings, and the extension of old plants, increasing the demand for building-brick. Prospective home builders, with the fear of depression removed, and with increased earning power, due to better business conditions, are calling in architects and making arrangements for the speedy building of that long deferred home. Farmers, having been taught a severe lesson by the excessive rains of the past summer, are preparing to tile their fields on a scale the like of which has never before been witnessed. City, county and state officials in charge of road building programs are shaping up new paving plans with renewed confidence in the receipt of the taxpayers' endorsement, and with a better feeling toward the best of all paving materials—brick.

GOTHAM BRICK HOLDS FORMER LEVEL

A steady tone characterized the New York building material market during the last week in November, brick being quoted at $7.00 per thousand with a good demand. A holiday—in this case Thanksgiving—which usually has a tendency to weaken quotations, had no effect upon the price of that commodity.

The price of paving brick in Omaha, Neb., has been advanced another five cents recently, making the price now $1.00 per square yard. All brick manufacturers competing in that territory are said to have made the increase. During the present year quotations have risen from ninety cents to one dollar, reflecting the growing demand for paving brick.

With the imports of china and earthenware showing a falling off of over $2,000,000 for the first nine months of the present year, which means that such a valuation must be made up in American production, the pottery industry of the United States is just entering one of the greatest eras of prosperity in the history of the trade. For many years it has been contended that American potters have been retarded in production by the consumption of imported wares. That much of the consumption of foreign porcelains and earthenware is being turned to that "Made in U. S. A." is now positively established.

Yes, a trade cyclone is booming across the United States. Unprecedented prosperity reigns and everyone is smiling.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

PERSONAL

Charles T. Harris, secretary of the Hollow Tile Manufacturers' Association, with offices in Cleveland, together with some of the leading manufacturers of hollow tile, was present recently in Detroit when the proposed amendment to the building code with reference to the use of hollow tile came up for reconsideration. After a heated discussion it was decided to lay the matter over

until the latter part of December. One of the points in the amendment calls for laying hollow tile in buildings in a vertical position only. Another part limits the use of hollow tile to buildings of two stories or less. The hollow tile men are prepared to fight this amendment to the limit, believing it to be absolutely unfair.

R. E. Miller, general manager of the Oak Hill (Ohio) plant of the William E. Dee Clay Products Company, was in Cincinnati recently, showing a number of builders and material concerns several specimens of face-brick turned out by the plant as an experiment. Mr. Miller stated that while there has been an excellent demand for fire-brick, hollow-tile and paving-brick, the company was also turning its attention to the manufacture of face-brick, experiments indicating that a high-grade face-brick can also be produced at its plant.

After serving for more than thirty years as general manager of the Eastern Hydraulic Pressed Brick Company's plant, Winslow Junction, N. J., George S. Turner died on November 8 at the age of sixty-eight years. Mr. Turner had recently left for a visit to Chesterton, Ind., his former home, going from there to Kalamazoo, Mich., where he was taken ill. His son, Wilson S. Turner, formerly prominent in local politics, made the trip to Kalamazoo to bring his father home.

A. P. McDonald, salesmanager for the Bannon Pipe Company, reports that the company recently obtained the contract for supplying the hollow-tile for the new Western Union Building which is being erected at Fourth and Market streets. The company is now supplying numerous less conspicuous jobs, both in the city and outside, and is serving several of these with rush orders, so that the builders can get their work in condition to meet real winter weather when it comes.

R. L. Stoddard, Detroit (Mich.) representative of the National Fire Proofing Company, says sales of hollow-tile were never greater than during the year just closing, not only in Detroit but thruout the state. It is a well-known fact that the automobile cities of Michigan, which include Detroit, Flint, Jackson, Lansing and Muskegon, have been unable to supply enough homes to take care of their people, and for that reason building activities in those cities have been unusually brisk.

D. Warren DeRosay, a brick manufacturer of Corry, Pa., left recently for an eastern business trip. While in the East, Mr. DeRosay expects to close up some new large contracts for paving-brick. At present the plant is operating to a capacity of 50,000 building-brick or 35,000 pavers per day. With no stock on hand and with a large amount of business booked for the coming year, it is expected that the plant will be operated to capacity for some time to come.

F. C. Carnahan, superintendent of the American Sewer Pipe Company at Brazil, Ind., recently entertained J. M. Preston, president, and Christian F. Manz, vice-president, of the J. M. Prestor Silo Company, of Lansing, Mich., who were in Brazil looking over the American Company's plant, which has been making clay silo tile for the Preston Company. According to the visitors, 1916 will be a banner year for the sale of

"When Do You Put Her Out"?
Guess At It—Time Limit—Or Price
Do you know positively when your kiln has reached and sustained for a sufficient length of time—a maturing temperature?
A Price Pyrometer furnishes absolute information.
The Price Electric Co.
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Reduce Your Fire-Insurance Rate
and at the same time give you absolute protection against human carelessness. The honest watchman welcomes the help he gets from the
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Also the National Board of Fire Underwriters have approved this system—hence a reduction in your fire insurance rate—the difference soon pays for the clock.
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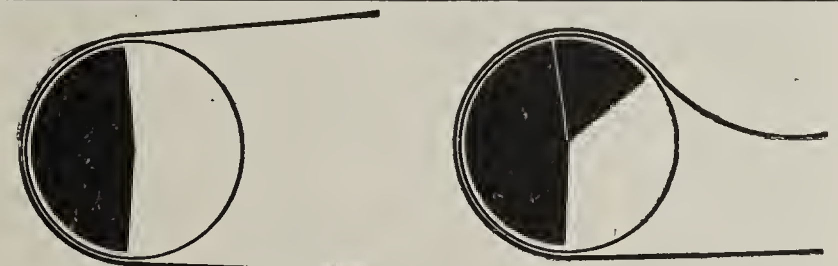

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Cling-Surface is a belt food that promotes long and economical belt life as well as constant high transmission efficiency, and offers about the best paying investment any belt owner can make. Order a package today for trial. Literature on request.
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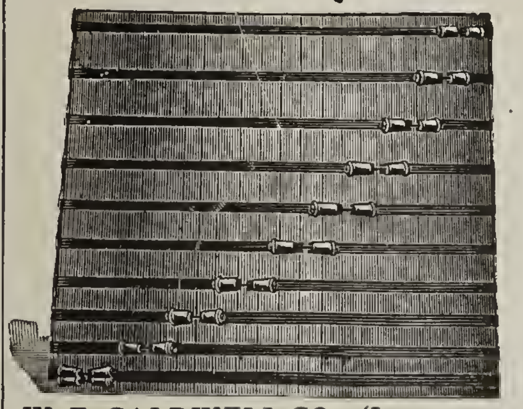

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The construction of
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is based upon scientific and conservative engineering principles that eliminate every point of weakness found in ordinary tanks.
The proven durability of the tank material, the scientific hooping and the expert construction, all combine to make the Caldwell Tank wear, last and give satisfaction. Get our illustrated catalogue before buying.
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Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

You Are Judged By the Samples You Send

Have you ever considered this fact, that your sample brick are your representatives, and that your company and its ability to furnish good material in good condition, are judged by the condition in which the sample is received?

It costs but little to pack your brick in Hinde & Dauch Corrugated Boxes, but you can be sure they will give thorough protection—no chipped edges or broken corners when these boxes are used. The sample will be a credit—not a disgrace.

Try it for yourself

The Hinde & Dauch Paper Co., **Sandusky, Ohio**

Do you carry extra chains?

Have you insured your shovel output by carrying in stock extra lengths of Woodhouse Specials—all ready for the time when you will need them—Quick ? You should—you know why!

Woodhouse Chain Works
Trenton, N. J.

hollow-tile silos and they are making arrangements for an increased output.

Major J. P. Christie, an Ohio brick manufacturer from Lima, is at present in San Francisco, from which place he is making excursions into Central California in search of a brick plant site. Mr. Christie seems to think that Richmond is a good place to locate a clay products factory, and will so recommend it to his company upon his return to Ohio.

Samuel W. Moore, a traveling salesman for the Hydraulic-Press Brick Company, Brazil, Ind., has gone to Toledo, Ohio, to assume the management of the sales department of the company's plant at that point. C. W. Irwin, formerly in charge of the Toledo office, has joined the company's sales-force at Minneapolis, Minn.

George D. Herrold, a brick manufacturer formerly located at Fresno, Cal., but who has recently been investigating the possibilities of installing a profitable manufacturing plant at or near Gilroy, Cal., is now having tests made of extensive shale deposits at the Balfing ranch near Gilroy. If the tests give good results, plant will be built at Gilroy.

Fritz Salmen, president of the Salmen Brick and Lumber Company, of Slidell, La., was a recent Chicago visitor, he being on his way home after an extended pleasure trip. Among other purchases made in the "I Will" city, were two oil burners, which will be used in connection with the oil-burning system that has been installed at the Slidell plant.

Arthur H. Locke, of Portsmouth, N. H., who for the past twelve years has been in active control of the York Harbor Brick Company, York, Me., has severed his connections with that company and returned to his native town. Before leaving, Mr. Locke received a vote of thanks from the stockholders of the York Harbor Company.

William A. Schellak of the firm of Polenske, Schellak and Company, brick manufacturers of Hastings, Neb., dropped dead in his office recently, following an attack of apoplexy. The fatal attack came without warning, while he was talking to a customer. Mr. Schellak was fifty years old and one of the city's most prominent business men.

John S. Haggerty, Detroit brick manufacturer, has returned from Camp Newton in the northern part of Michigan, where he spent his annual two weeks hunting deer. He succeeded in landing the one deer that the Michigan laws allow to each hunter.

Fred. E. Keeler, president of the Mason City Brick and Tile Company and a number of other local enterprises, left for Los Angeles November 15, accompanied by Mrs. Keeler. This is the annual pilgrimage of the Keelers to California, from whence they will return in the early spring.

Charles K. Davis, president of the Ajax Brick Company, of Detroit, Mich., died in his apartments at the Hotel Statler, Detroit on Friday, November 26. The cause of death was nephritis and heart failure. He was 43 years old. The body was taken to Wellston, Ohio, for burial.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Wm. D. Gates, of Chicago, secretary of the National Terra Cotta Society, is now on the Pacific Coast. He spent last week in San Francisco interviewing the local terra-cotta men and taking a last look at the Panama-Pacific International Exposition.

Carson Greene, of Chicago, who will assist in the management of the Monmouth (Ill.) Clay Manufacturing Company, has arrived in Monmouth and is making preparations to move his family to that city.

Bert Howard, a salesman with the Western Brick Company of Danville, Ill., has been transferred to the Peoria office of the company where he will have charge of the brick sales in northern Illinois.

Harry N. Bowen, secretary of the Diamond Fire Brick Company, Canon City, Col., has been very ill, being confined to his home for several days. He is now recovered, however, and is back at his desk.

Frank W. Makepeace, head of the Indiana Brick Company of Anderson, Ind., has announced his candidacy for state auditor on the Republican ticket.

E. O. Biglow, president and general manager of the E. Biglow Company, New London, Ohio, left on December 4 for his winter home at Winter Park, Fla.

Fred Rowlett of Petrolia, Ont., is planning to build a new brick and tile plant.

ALABAMA

The A. J. Kahn Brick Company of Selma, Ala., is working to full capacity, turning out 50,000 brick daily. This is a good indication of the improved market for building brick in the South.

CALIFORNIA

Bids are soon to be called for for the construction of a sewer on Wyandotte Street, Stockton, Cal.

The city authorities of Daly City, Cal., have advertised for bids for the furnishing and laying of a large amount of sewer-pipe in this city.

The Atlas Paving Brick Company has secured a contract to supply the United Railroads of San Francisco with a large amount of paving-brick to be used between the company's street railroad tracks.

The Sacramento (Cal.) Pressed Brick Company has been incorporated for the manufacture of pressed brick, with a capital stock of $75,000. Paul Usher and P. W. Bean of San Francisco, and H. M. Bennett of Sacramento, Cal., are the interested parties.

The Calexico Brick and Tile Company has been organized at Calexico, Cal., on the Mexican border, by C. C. Buffington, of Los Angeles, P. P. Anderson, P. Barnes and P. E. Carey, of Calexico, and H. A. Pyles, of Whittier, Cal. The new company will be incorporated with a capital stock of $10,000.

The Stockton Fire Brick Company, of San Francisco and Stockton, Cal., has completed the installation of a new drying plant at the latter place, and will be able to keep its plant in

SAY!

Are you using ***Nugget Babbit?***

WELL — WHY NOT? —

It's the best—its hardness insures great wear resistance—it stands up under heavy duty—over one hundred other plants stock it—and use it.

What's your address?

THE CLEVELAND ALLOYS CO.
CLEVELAND - - - - - OHIO

Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the

"Carrier" with One Door Lifted.

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

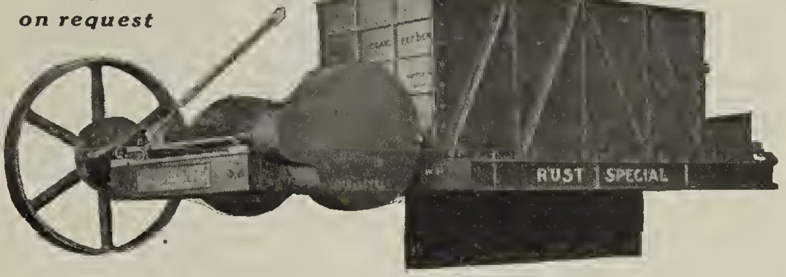
Dry Kiln Door Carrier Co.
Indianapolis, Indiana

It Improves Your Product—

Because it feeds the clay to the pugmill more evenly than is possible by hand, prevents it from clogging, and insures a perfect mix. The RUST SPECIAL—the BEST in Clay Feeders—does this and more. Ask us about it.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.

Catalog sent on request



THE IMPORTANCE OF DRAFT CONTROL IN BURNING

Cannot be overestimated. For many years we have made the

Best Draft Gages for Kilns.

The Ceramic Supply & Construction Co.
COLUMBUS - - OHIO

LOAD BORE HOLES
With Low-Freezing
DU PONT
Quarry Powder
A New, Powerful, Quick-Acting Explosive
Especially Made for Winter Work

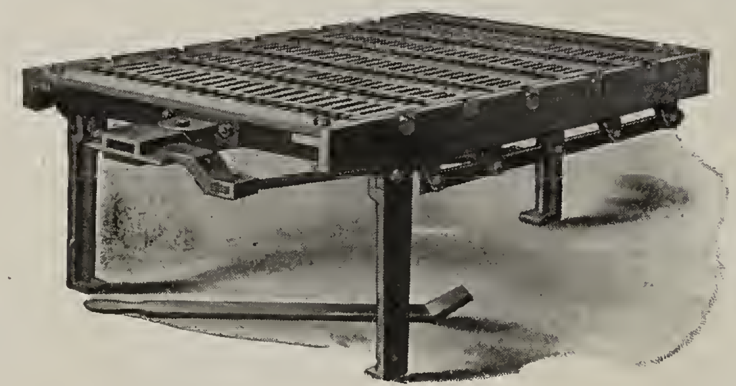
THIS explosive meets the requirements for an "all-round" powder for clay pit work. It has the low-freezing property which makes the thawing of explosives seldom necessary, even in a near zero weather.

Insist that all blasting be done with DU PONT QUARRY POWDER or low-freezing explosives introduced and made by the pioneer powder makers of America.

ASK FOR NEW AND INSTRUCTIVE BOOKLET ABOUT EXPLOSIVES AND METHODS OF USING.

E. I. DU PONT DE NEMOURS & CO.
Powder Makers Since 1802
WILMINGTON, DEL.

THE CANTON KILN GRATE



FOR THE PLANT THAT COUNTS THE COST

It enables that plant to buy fewer carloads of coal, and to pay less for the carloads that it does buy. For—the Canton Kiln Grate burns less coal; it does it thoroughly and economically, and it can burn a low grade of coal—to accomplish the same results that you are getting (or want to get) now.

Bulletin B contains complete information on use of grate in kilns.

THE CANTON GRATE CO.
1706 Woodland Ave. CANTON, OHIO

operation during the rainy season. The San Francisco office of the company reports a large amount of shipping to outside points.

The Independent Brick Company, of San Francisco, Cal., has closed negotiations whereby that company takes over the plant of the Sacramento Sandstone and Brick Company. The new owners have begun operations at the Sacramento plant, which has been idle for some time. H. M. Bennett, president of the Independent Brick Company, who carried on the negotiations, states that he has orders on hand for several hundred thousand brick.

The Los Angeles Pressed Brick Company, of Los Angeles, operating manufacturing plants at that city and at Santa Monica, Cal., and with extensive clay deposits near Elsinore, Cal., has now completed plans for the erection of a brickmaking plant at Alberhill near Elsinore. The company owns its own town-site near the proposed plant, has an abundance of raw material right at hand and excellent railroad shipping facilities. Hollow-tile dwellings are to be built for the employes. Important reductions in freight rates on brick have been secured from the Santa Fe R. R. Company, the carload rate on clay products shipped from Alberhill to Waco, Bakersfield and Mojave having been reduced twenty per cent from previous rates.

CONNECTICUT

Fire, due to an over-heated kiln in the brickyard of the I. L. Stiles and Son plant, New Haven, Conn., recently did considerable damage, the loss being estimated at $3,000.

The East Berlin Brick Company and J. Conley were the last of the brick manufacturers in Berlin, Conn., and vicinity to close down for the season. The Conley yard is equipped with a steam drying system which enabled it to continue work until the ground began to freeze.

There has been much to hamper Connecticut brickmakers during the season just closed, the greatest trouble being the difficulty of securing competent help. This was due to the calling of "reserves" to serve in the European war and also to the labor unrest which has affected all lines of industry. The weather also was against the brickmakers, the continued rain at one time during August moistening the clay so that it was feared it would be necessary to suspend operations. The output for the district is estimated to have been reduced about one-third as a result of these handicaps.

ILLINOIS

The Danville (Ill.) Brick Company, of which Frank W. Wood is vice-president, reports business as being good, with plans under way for the installation of additional clay storage capacity, drier room and new kilns.

The United States Terra Cotta Company, Harvey, Ill., has been incorporated with a capital stock of $500,000 to manufacture clay wares. Louis G. Peters, C. H. Dalton and D. B. Copper are the principal stockholders.

The Charlestown (Ill.) Brick and Tile Company's plant, sold last August at a Sheriff's sale, went to J. B. Mitchell & Son, who will not, however, receive a full title to the property, until November 1916. It is doubtful if the new owners will resume operation.

INDIANA

The Standard Brick Company of Crawfordsville, Ind., has issued $75,000 worth of preferred stock, making its total capitalization $175,000.

The Indiana Brick Company of Anderson, Ind., has been operating Sundays to keep up with the rush of business.

(*Continued on page* 848)

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Paving Contractors

who use Lehigh Cement for base, filler and grout on all brick paving work

Know Exactly What the Results Will Be

They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.

LEHIGH CEMENT

Down in the Pit

Where the big shovel is loading cars—half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive
light, speedy, powerful— to yank the loads out—the empties in.
Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

101 Questions Answered

A Book for the Clayworker

Clay Working Problems
Published by BRICK & CLAY RECORD CHICAGO

New—just off the press—bound in cloth and illustrated. It contains more than a hundred problems presented in real plants and *solved* by the foremost clayworking experts of the U. S. and Canada.

184 pages of live information that can be coined into dollars on every clayworking plant.
Price $1.50

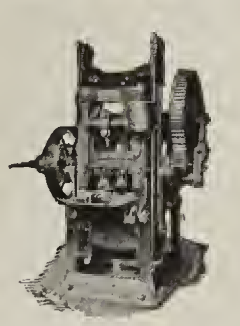
Sent post-paid on receipt of check, cash or money-order by

Brick and Clay Record
445 Plymouth Court CHICAGO

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line

We Manufacture



Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.

Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

Lakewood Engineering Co.
Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Yellow Strand Power-steel Truckline

It can easily move two loaded freight cars.

It coils up flat—takes up practically no room.

Its rated breaking strain is about 12 TONS.

Powersteel Truckline

is about 18 ft. long and ½ in. dia. Y. S. wire rope, equipped with strong drop forged hooks and heavy manila or wire slings—as desired.

Buy yours now for $6.50—test it—see it deliver the goods—then you will want one for each of your trucks.

Broderick & Bascom Rope Co.
703 N. Second St.
Saint Louis, Missouri

THWING HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

Never Sleep

If the burner knows that his work is being

Recorded in Ink

every few minutes, he will stay **On the Job.**

Multiple Recorders reduce the cost of installation.

How Many Kilns Have You?

Thwing Instrument Company
437 North Fifth Street
Philadelphia

Within the past three weeks the company has received orders for about a million brick, necessitating the operation of the plant on extra time.

Indianapolis architects and salesmen for the Hydraulic-Press Brick Company were guests at the Brazil (Ind.) plant of the company on November 11. A barbecue was served at the Maple Lane farm, north of the city.

Boys hunting rabbits along the river front of Jeffersonville, Ind., across the Ohio river from Louisville, recently discovered a subterranean passage opening at the edge of the water at its present stage. They made no attempt to explore it except for a short distance, and found that it was paved and lined with brick, the top in the form of an arch. There are no city records to indicate what was the purpose of the tunnel and no old citizens recall that there ever was a sewer. It is suggested and generally believed that the passage once formed the means of communication between what once was Ft. Finney anad the surrounding stockade, built during the days when the Indians were feared, the purpose being to supply the people inside the fort with water. The tunnel is three feet or more in diameter and accords with the legend that there was a secret passage to the river. It is interesting from the standpoint that the brick used in its construction must have been among the first, if not the first, made in southern Indiana. They are sound and the walls, as far as has been determined, are holding very well.

IOWA

A number of improvements are being made at Tramp Brothers clay plant near Creston, Iowa.

Johnson Brothers Clay Works, near Fort Dodge, Ia., is building a new boiler house and making other improvements in the plant equipment.

The American Brick and Tile Company of Mason City, Ia., is erecting several new steel-shell round down-draft kilns.

The Rockford (Ia.) Brick and Tile Company has recently completed the erection of a 125 ft. hollow brick stack. In addition to the boilers, this stack will accommodate several kilns.

The Platt Company, Van Meter, Iowa, is planning to install a new shale-planer during the winter months. According to C. B. Platt, the drain-tile industry will witness a banner year in 1916, and to be prepared for the additional business he will enlarge and improve upon the methods of gathering clay that are now used at Van Meter.

The Auburn (Ia.) Brick & Tile Company is now engaged in the work of fireproofing its machine and engine room. After considerable trouble during the past summer with heavy rains in the pit, this company is insuring itself against further difficulties of this kind by building a new clay shed which will have a capacity sufficient to supply the needs of the plant during the periods of bad weather.

The Plymouth Clay Products Company, Fort Dodge, Ia., is experimenting with clay from new pits near Lehigh. Twenty-five acres of clay land are being held in option by this company which has begun to make trial shipments from the new pits. A new product, the nature of which is being kept secret, will be made from this clay, if the tests now being made prove satisfactory.

Cerro Gordo county, Iowa, is doing a most commendable work in the drainage of its roads. Provision has been made

(*Continued on page* 850)

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Flower Pots—
A Profitable Bi-Product

No matter what the nature of your clayworking plant, it is no doubt possible for you to add Flower Pot manufacturing with very little additional outlay.

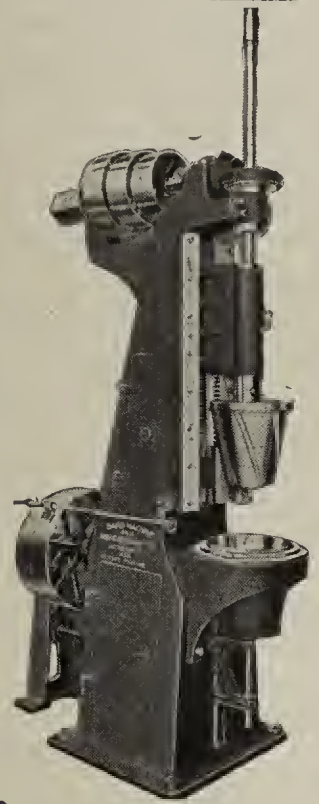
Often you wish you had some way to keep Jim Smith or Jack Jones busy all the time, don't you? Well, here's the solution: put in a

Baird
Flower Pot Machine

Easy to operate, absolutely accurate. Makes any regular size pot desired.

Send us a sample of your clay and let us show you what our machine will do.

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the **dependable brand.**

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York

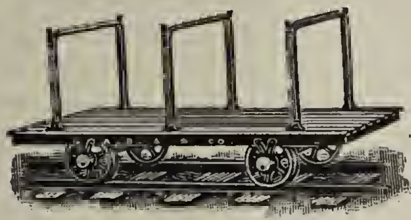
Chicago, Ill.
East Liverpool, O.
St. Louis, Mo.
Kansas City, Mo.
New Orleans, La.
Philadelphia, Pa.
Boston, Mass.

We carry a complete line of high grade chemicals for the clay industry

REDUCE YOUR HANDLING COSTS

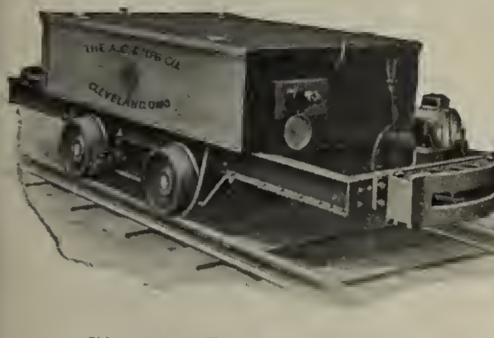
By the Purchase of Efficient Equipment

No. 217-E. Side Dump Car Equipped with Motor



No. 126 Double Deck Dryer Car

ATLAS
High Efficiency
Cars and
Electric Locomotives

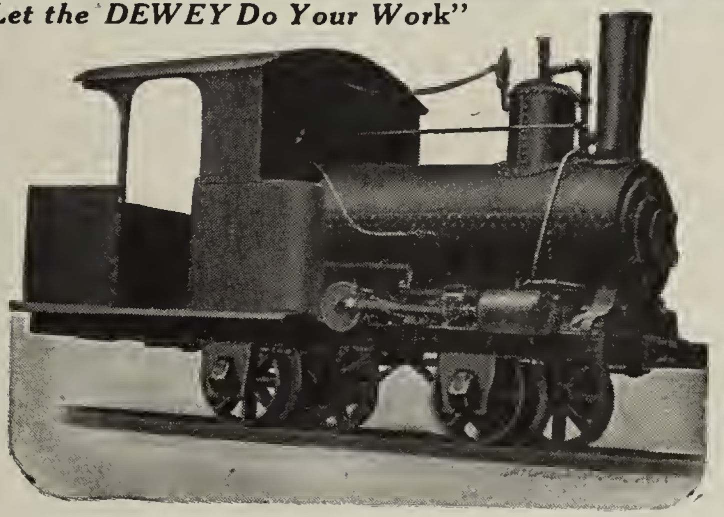


Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

THE ATLAS CAR & MFG. CO.
1287 Marquette Road, Cleveland, Ohio

"Let the DEWEY Do Your Work"



The Boiler of the DEWEY

The Borden Brick & Tile Co., Goldsboro, N. C., is using a DEWEY locomotive. It discarded the mule-driven car and declares it not only got an increased efficiency but reduced the cost of hauling.

This concern hauls eighteen cubic yards of clay to a trip of one and a half miles.

How many mules would it take to do this same thing and how long would it take them to do it?

It is our own special design. It has unusually large capacity, is a quick steamer, and is economical in fuel consumption.

These three characteristics have made the DEWEY especially adapted to clay pit work.

Strong, Safe, Long-Lived

The DEWEY boiler is designed to reduce to a minimum the numerous angles and corners and pockets which serve as collecting places for mud and scale—distressing features about every standard locomotive boiler.

The DEWEY boiler, therefore, is stronger, safer and longer-lived and does BETTER work than the regular types.

The DEWEY sells for several hundred dollars less than any of the standard type locomotives of the same size and weight.............. $1200

DEWEY BROS.
Goldsboro, N.C.

SAY I SAW IT IN BRICK AND CLAY RECORD

Absolute Heat Control

—that's what everybody is talking about. Leading ceramists tell us that it's the most momentous question confronting the clay-working industry—you brick men know that it represents the difference between profit and loss.

THE UNDERWOOD PRODUCER GAS BURNING SYSTEM

(Patented)

is a positive factor in the solution of this problem. This has been proven day after day, for months and months, in plants where this system is installed.

LET US SEND YOU—

a facsimile of the original heat record taken by John N. Gregori, the noted ceramist, at the plant of the U. S. Brick Co., Tell City, Indiana. It proves beyond any question that the Underwood System makes heat control absolutely sure and easy.

Have you sent for those facts and figures that will convince you?

The Manufacturers Equipment Co.

"Everything for the Clayworker"

Dayton, Ohio, U. S. A.

for the installation of two lines of tile, one on each side of every road in the county. "You can't have a mud hole without water" is the expression of a man prominent in the affairs of the county, and with the water taken away by the tile, Cerro-Gordo county's dirt roads will probably be the most presentable in the state. There is just one thing more for the county commissioners to do, and that is to pave these roads with brick.

The plant of the Mason City (Ia.) Clay Works, which is operated by the Mason City Brick and Tile Company and which was destroyed by fire on October 8th, resumed operations November 8, establishing a record in the way of speedy rehabilitation. The new building is of brick and hollow-tile construction and is absolutely fireproof. A large force of men has been working day and night to get the new building completed, machinery installed and the plant ready for operation before the end of the present shipping season. The fire occurred at a most inopportune time, the plant being several weeks behind orders when it was destroyed.

All of the brick and tile manufacturers in the Mason City (Ia.) district report a very heavy demand for drain-tile and have found it impossible to handle all of the business that has been offered them. The excessive rains of the past summer and the consequent loss of crops, have shown the farmer that he still needs a lot of tile and, tho all factories have been operating to full capacity during the past several months and with unusually heavy stocks at the beginning of the season, it has been impossible to keep up with orders. All indications point to a continuation of the demand during the coming year and capacity operations for the winter season.

The Adel (Ia.) Clay Products Company is building a new round clay shed. Hollow building tile, properly reinforced, will be used in the construction of this building, which will be sixty feet in diameter at the base, tapering to fifty feet at the top. This form of construction is used to take care of any eccentric load in the building due to a large amount of clay being removed from one side. The shed will have a capacity of 7,800 tons of clay, which will furnish enough material for a three months' run on the plant and enable the company to shut down its pit during the winter months. A half-pitched tile roof will cover the building which, when completed, will be fire and frost proof. In this connection, the work of fireproofing the machine and boiler rooms has just been completed, minimizing to a large extent the fire hazard. Plans are now under way to remove all of the wooden floors used thruout the plant, and to substitute hollow-tile, making the plant entirely fireproof.

KANSAS

A striking indication of Wichita's (Kan.) growth was recently given out by C. A. Noll, a local brickmaker, in a statement which showed that there had been at least $850,000 worth of brick buildings erected or started in that city during the past ten months.

KENTUCKY

Operations are going ahead at full blast at the plant of the Coral Ridge Clay Products Company, according to George H. Feidler, general manager. The company has begun deliveries to the Speed store buildings and this order will serve to keep the plant going at a good rate for a time at least.

The Kincaid Brick Company, at Boonspath, Ky., has recently installed three new down-draft kilns, which are giving perfect satisfaction, according to W. B. Kincaid, owner of the company, and George Graham, superintendent. It is the

(*Continued on page* 852)

SAY I SAW IT IN BRICK AND CLAY RECORD

Think of This!

A 22-Foot Kiln Has Been Burned in as Low as 26 Hours, with a Fuel Consumption of Only Six Tons of Coal—This Includes the Watersmoking and High Fire Periods Too!

This time is exceptional, of course. It's quite the rule, however, to burn this size of kiln with six tons of coal in from 30 to 36 hours, in different plants equipped with the

Hook Patent System of Kiln Burning

It long ago passed the experimental stage—in scores of plants making brick, tile and other clay products it has proven its efficiency.

It's impossible to tell you much about this remarkably successful system in this space—but if you'll just ask us, we'll send you full details, facts and figures to convince you that we can cut your burning costs and increase your dividends.

HOOK PATENT KILN CO.
VIGO, OHIO
Canadian Office: 250 Dufferin St., Toronto, Ont.

GANDY

Put in a Gandy Drive

Just at this time, with the price of leather and rubber belting soaring upward, it is more than ever advisable to try

GANDY

Stitched Cotton Duck Belting

Consider the fact that for 37 years GANDY Belts have been steadily growing in popularity. They must have given the best of satisfaction.

This satisfaction is due to a combination of satisfactory service and low price. Gandy is water, oil and dust proof, grips the pulleys with a hard, slipless hold, and *wears;* while its price is much less than you pay for leather or rubber.

Investigate. Write us today for sample and prices.

The Gandy Belting Company
Baltimore - Md.
New York Office
36 Warren Street

Marion
REVOLVING SHOVELS

THE operation shown below speaks for itself. Note that the "long reach" of the Marion boom enables this outfit to work successfully in a deep bank without blasting down the top.

Observe also that the dipper is making a clean, full, straight cut at every sweep—taking away a large bite of clay, as shown by the marks left by the dipper-teeth. This Marion Shovel is helping the profits of the Metropolitan Paving Brick Company in two ways—

Saving Money Digging, and Saving *More Money* by Doing the Mixing at the Same Time

The very favorable experience that the Metropolitan Paving Brick Company have had with their Marion has been duplicated hundreds of times in other brick plants all over the country. Scores of other progressive manufacturers are now falling into line—why don't *you* do the same?

Our interesting booklet "Digging and Mixing Clay—One Operation" is a mighty straightforward, plain-spoken, helpful little book, and we'll be glad to send you a copy on request for Catalog 921.

The Marion Steam Shovel Company,
Established 1884
STATION A MARION, OHIO
Atlanta Chicago New York San Francisco Seattle
Manufacturers of Excavating Machinery of Every Description.

7

intention of Mr. Kincaid to install at least twelve more kilns of the same type.

The Southern Brick and Tile Company, according to T. N. Bishop, secretary of the company, is going on full time getting out brick and tile on orders. The tiling operations are going forward on a satisfactory basis, the last contract written providing for drainage of the farm of Dr. E. W. Patterson, practicing in Louisville, but owner of a farm on the Cane Run road.

In the way of future business Louisville (Ky.) brick and tile manufacturers are looking to a section south of the city where a large area in the "Pond District" will be drained by channeling of Mill Creek. The county and property owners have been making this improvement at the rate of $35,000 a year for several years and should complete the operations next year. This will supply drainage for many hundreds of acres and will make the call for tile drainage insistent.

The fact that the larger contracts came out late in the season has produced a condition in Louisville, Ky., that is unusual. Altho snow began to fly late in November, and the indications were strong for inclement weather from then on, brick manufacturers and dealers are in the midst of a busy season, many of the manufacturers having little more than begun to deliver on operations that promise to take deliveries steadily enough thru the winter to keep the yards going practically at full blast.

MAINE

John L. Bowden, who has had charge of the yards of the Bangor (Me.) Brick Company during the past season, has completed a contract for making 450,000 brick and work has now been suspended at the plant.

MASSACHUSETTS

The roof of one of the storage buildings at the North Adams (Mass.) Brick Company's plant at Braytonville, recently caught fire, but the emergency crew at the yard was able to extinguish the blaze before the city fire-fighters arrived. The loss was not heavy.

The Bergerson Brick Yards at Amesbury, Mass., have been closed for the winter after a successful season. One of the last contracts handled this fall was the furnishing of brick for a big shoe factory building that was erected in the neighboring city of Newburyport.

MICHIGAN

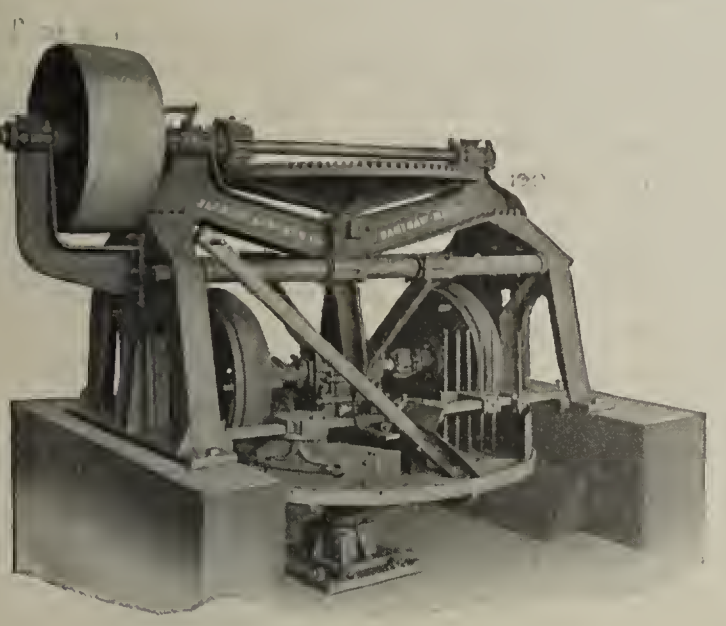
The American Brick and Tile Company, of Morenci, Mich., reports this year the most successful in its history. The company has closed the plant for the winter and is making necessary repairs and building a new drier.

The Ajax Brick Company of Detroit, Mich., formerly the Schneider Brick Company, Springwell, Mich., has closed its plant until March 1st. During the winter shut-down the company has decided to install two new soft-mud brick machines with a combined daily capacity of 100,000 brick.

At Fifty-first street and Michigan avenue, Detroit, there is a plant conducted by Anthony Hupprich for making clay flower-pots. He has been in the business for more than thirty years, and makes something like forty-two sizes of flower-pots. Two molding machines are used at present. The small machine turns out pots at the rate of seventeen to twenty-seven a minute, and the larger machine eight to twelve of the more bulky pots a minute. There is one down-draft, coal burned kiln with an average capacity of 35,000 pieces, altho it will hold 60,000 of the smaller pots and saucers at one burning. Mr. Hup-

(*Continued on page* 854)

SAY I SAW IT IN BRICK AND CLAY RECORD



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

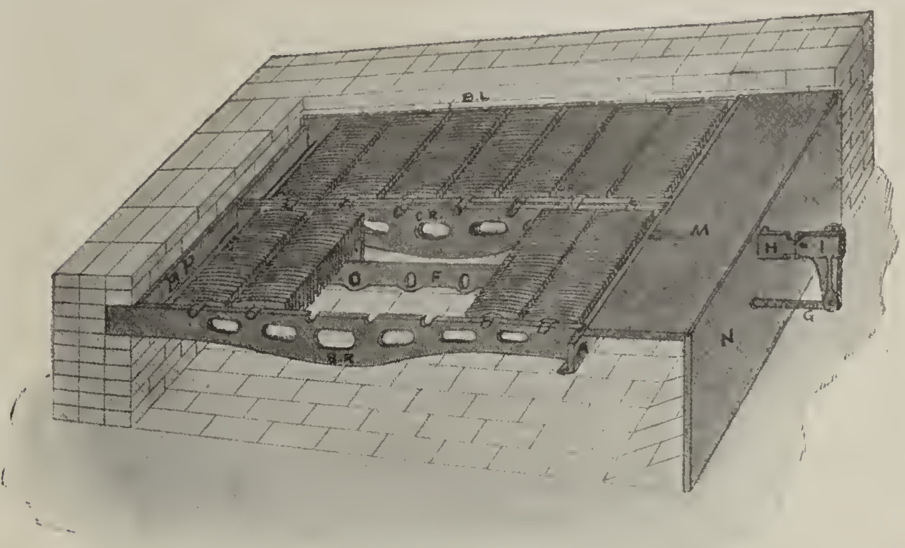
Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

If You Want To Burn Cheap Fuel—

Here's the grate to use



It's The Cyclone—

The grate that is Sold on 90 Days' Free Trial

Install a Cyclone under your boilers and you will cut your fuel cost, increase the evaporation, and have not one cent of repair charge in one year.

Other brick companies have been using the Cyclone for many years—why not you?

Cyclone Grates

Dumping and Shaking

have also proven their worth as savers of fuel and labor when used on kilns.

Hadn't you better send for catalog and full details?

Cyclone Grate-Bar Co.

Buffalo, N. Y.

How Do You Dry Your Ware?

We know there are so many different drying methods, each one claiming to be the "best," that it's hard sometimes for the clay product manufacturer to decide just what he ought to do.

Yet—if you will let each one of us lay before you facts and figures—if you will INSIST on each one studying YOUR needs to determine what is best for YOU—then

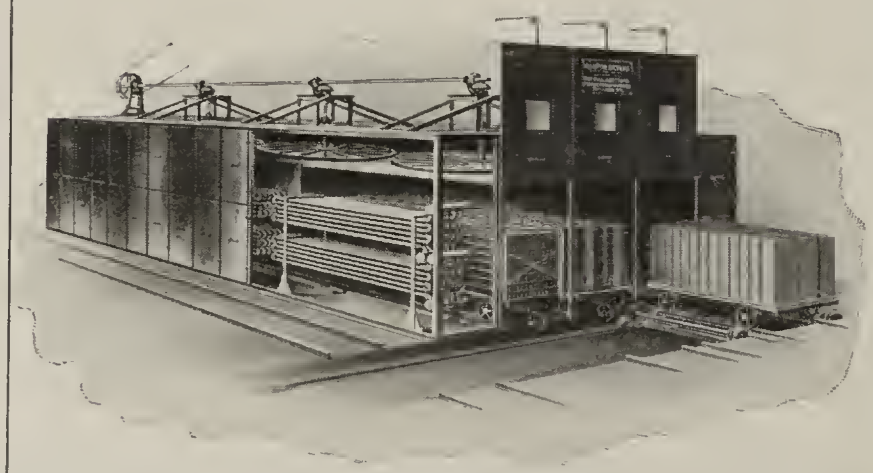
We'll be satisfied to take our chances on your deciding on the

"Proctor" Drying System

We make no claims we cannot prove—we ask only a fair investigation as to the merits of our claims—we want your confidence as well as your business.

We'll gladly send you our booklet: "Drying Clay Products in Sixty Minutes."

Philadelphia Textile Machinery Co.
Hancock and Somerset Streets
Philadelphia, U. S. A.



prich plans to double the size of his plant next year, adding two more machines and another kiln. The product is largely disposed of to Detroit and neighboring cities.

MINNESOTA

A plant for the manufacture of brick, and possibly tile, will be established at Black Duck, Minn., if tests now being made of local clays prove satisfactory. Clay for the manufacture of brick has been found on the Legler farm adjoining the village. Henry Legler, owner of the farm, is having the clay examined, and if it proves to be of the right quality the construction of a plant will be started in the near future.

MISSOURI

The plant of the old St. Louis Clay Burning Company, which was purchased about five years ago by the Alton (Ill.) Brick Company, has been remodeled, and is now running on face-brick and hollow building tile.

MONTANA

After spending three weeks in and about Libbey, Mont., W. J. Pech, head of the Buckeye Pottery Company of Macomb, Ill., has returned to his home town with samples of Libbey clay for testing in the pottery works at Macomb. If the clay proves satisfactory, Mr. Pech states that it is more than probable that a large pottery will soon be established at Libbey.

NEBRASKA

The Standard Brick Company, of Omaha, Neb., reports business as being good. A new brick machine will be installed at this plant within the next two or three months, which is a part of the company's campaign to strengthen its product and to cut down its percentage of breakage.

The Yankee Hill Brick Manufacturing Company, of Lincoln, Neb., is planning to enlarge its clay storage capacity during the coming winter months. This company expects to increase its market during the coming months by securing a greater shipping radius, and by developing a heavier demand in the markets it is now serving, the high quality of its product being the main selling argument. A very careful canvass of the present market will be made, also, of a good portion of the surrounding territory. Whatever prospects are developed in this way will be followed up with strong sales letters from time to time.

NEW HAMPSHIRE

The last kiln of the season has just been fired at the brickyards of Alfred J. Eno at Exeter, N. H. This will bring the output of the plant for the season up to about two million brick.

NEW JERSEY

The Standard Brick Company, of Newark, N. J., has been incorporated to manufacture brick, tile, terra cotta and other clay products, its capital stock being placed at $125,000.

NEW YORK

The Kittanning Sales Company, Inc., with offices at 1133 Broadway, New York City, and which has been doing business under that name for the past seventeen months, is under the active direction of C. J. Henderson, vice-president and secretary. This company is identified with the Kittanning Face Brick Company, of Kittanning, Penna., a plant with a daily capacity of 75,000 high grade face-brick.

The American Enameled Brick and Tile Company has extended an invitation to all of its representatives, to be its guests December 3, 4, 5, 6 and 7, in New York City. Headquarters will be maintained at the Hotel Martinique. It is

(*Continued on page 856*)

SAY I SAW IT IN BRICK AND CLAY RECORD

It Saves and Utilizes all heat that is radiated from KILN CROWNS

The McManigal Super-heating System can be applied to any down-draft kiln.

In principle it is a system of two crowns suitably separated. Flues lead from the chamber between the crowns to each furnace.

A pipe connected to a small blower is introduced into the inter-crown space at the top. A current of air is blown in, and constantly bathes the crown, absorbing the radiated crown-heat and carrying it into the furnaces.

This preheated air used for combustion thus has an initial temperature of about 700° F. and the saving accomplished amounts to 25% to 30% in both fuel and time.

It appeals to your imagination because the theory is correct.

In practice it is a demonstrated success. Write now for particulars.

The McManigal Grateless Furnace Co.

Logan, O. Columbus, O.

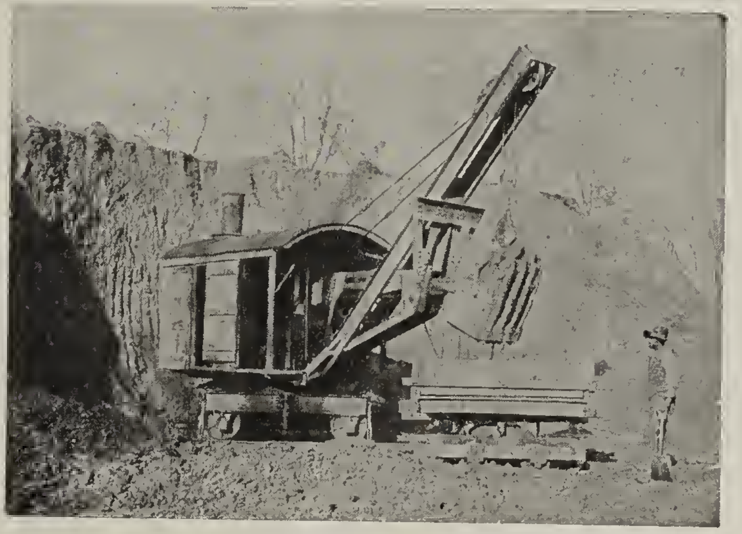
THEW SHOVELS

FULL CIRCLE SWING STEAM SHOVELS

Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

THEN JUST ASK

for Circular 22 A. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown, and other information incorporated of a character that will interest all clayworkers.



Thew Shovel which saves wage of 10 men every day

There are now

Over 300 Thew Shovels in the Clayworking Industry

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew features of particular advantage in this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew Automatic Shovel Co.
Lorain, Ohio

Send me circular 22 A, giving cost facts for digging clay and shale and other information of interest as advertised in "Brick and Clay Record."

Name.........................

Address.........................

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Make Sure-footed Accountants of Your Bookkeepers

To Employers Only:

There is a lot of difference between Bookkeeping and Accountancy. The **function** of the Bookkeeper is to **record** while the function of the Accountant is to create, improve, analyze conditions and devise betterments in that branch of the business.

You have a good Bookkeeper, or Bookkeepers now. To develop them into the larger service which is real Accountancy, they need only be thoroughly grounded in advanced fundamental principles which can be applied to your particular problems with great profit to the business.

Here is our thought:

You are spending large sums in plant betterment and by spending a nominal sum in man-betterment you will secure a marked increase in the efficiency of that part of your organization—and stop a lot of costly leaks that are now sapping your profits.

We feel that if you can induce the right man or men in your organization to do the work of mastering our highly practical course of instruction, you can very well afford to help them pay the cost of the "tools" with which they work.

Our suggestion is that you offer to advance the cost of the Walton School Course in Higher Accountancy to your head bookkeeper and say one or two assistants, allowing them to repay you at the rate of a couple dollars a week—with this premium on their industry; that, as soon as they complete the course and get our Certificate of Graduation, you **will refund all the money they paid you on account.**

You will begin enjoying the benefit of their work, from the first lesson, in their broadened grasp of accounting and the saving in time that our method will open up to them.

Our instruction is wholly personal and we have NO TEXT BOOKS to sell. Our instructors are themselves trained Certified Public Accountants of more than local reputation.

Out of town students get the same instruction by the same teachers as we give to our resident students.

Send for our literature and let us discuss this important question with you.

WALTON SCHOOL of COMMERCE
710-720 Peoples Gas Bldg.
CHICAGO, ILL.

expected that arrangements will be made whereby a number of the representatives will make up a party to go by boat from New York to Old Point Comfort, Va., to attend the annual conventions of the face-brick manufacturers and dealers. manufacturers and dealers.

NORTH DAKOTA

The North Dakota Pressed Brick Company, Dickinson, N. D., has installed machinery to manufacture hollow building tile.

OHIO

The E. Biglow Company, of New London, Ohio, reports an improvement in business since November 1. The company has just installed a new wagon loader for loading its coal cart.

The Canton Clay Products Company, of Canton, Ohio, has been incorporated at $75,000 by Charles A. Bourgouis and R. B. Robinson, of that city. The company will erect a plant a half mile east of Robertsonville, O., and will manufacture brick at first, and later sewer pipe.

The New Philadelphia Paving Brick Company, recently organized in Tuscarawas county, Ohio, with C. R. Marlow as president and N. W. Senhauser secretary, has had prepared plans for its new plant, which will consist of three buildings, each three stories in height, besides a power-house and storage buildings. The total cost will be about $150,000.

The brick for the buildings included in the first section of the new Hyde Park High School at Cincinnati, Ohio, will be furnished by the Cincinnati Clay Products & Supply Co. About one million brick will be supplied for this job, making one of the largest orders awarded in Cincinnati this year.

There is an opening in Cleveland, Ohio, for a good enamel-brick line that has not already secured an adequate connection in the Sixth City. Communications on the subject will be received by "Brick and Clay Record" and held as in confidence, except as they shall be to the mutual interest of the corresponding parties.

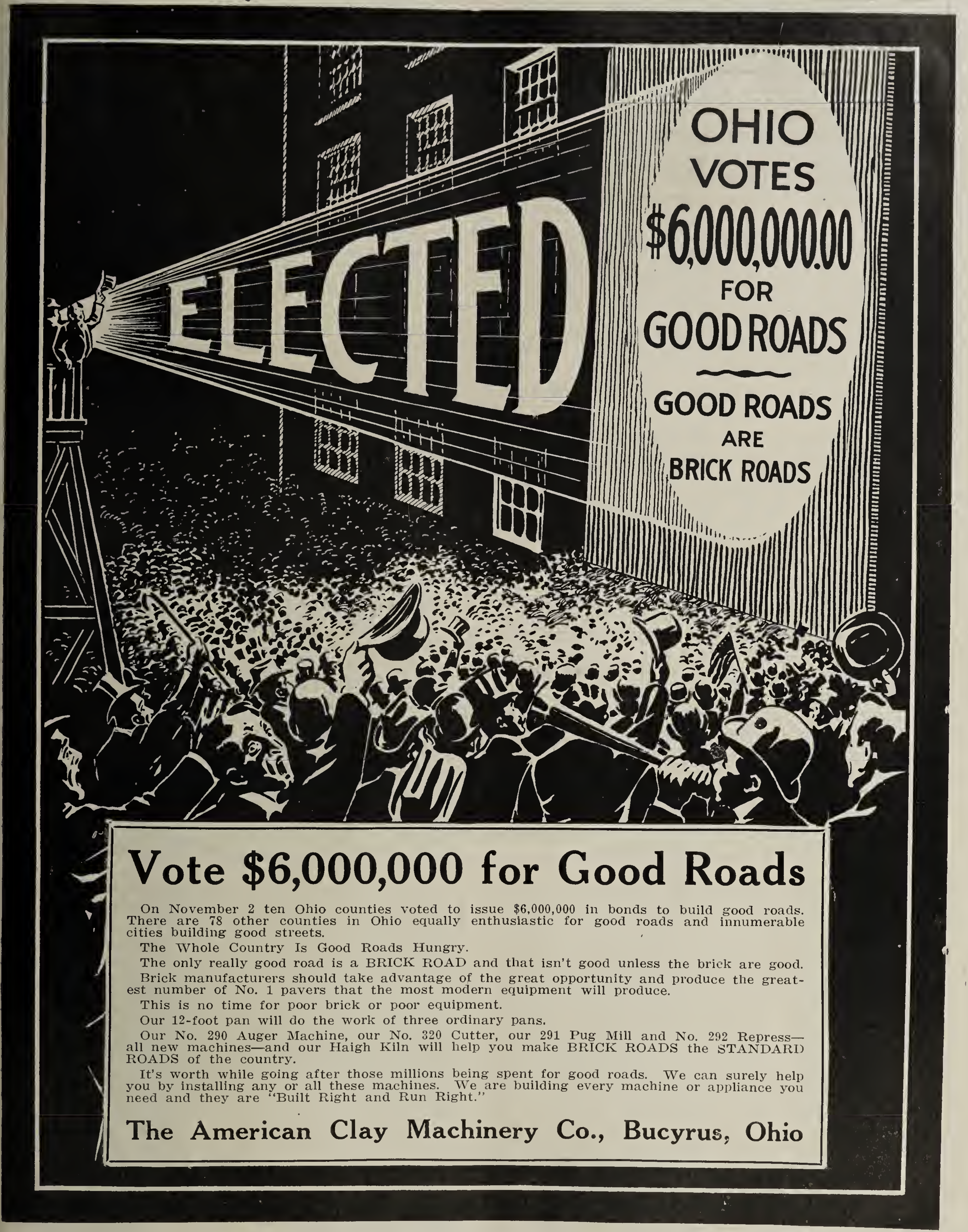
In spite of the arrival of wintry weather in Cincinnati arrangements are being made for some very large building projects. A half-a-dozen large jobs, involving work estimated at a value of over $1,300,000, were outlined early in November as probable to reach the permit stage before the end of the year.

The Pursell-Grand Company, Cincinnati brick dealers, during one week in the latter part of November, received a large number of small jobs, none calling for over 30,000 brick, but which rolled up the total sales for the week to 370,000 brick. The company has also secured the order for furnishing 100,000 brick for the new plant of the Hess Spring & Axle Co.

The plant of the Trimble Paving Brick Company, Glouster, Ohio, has resumed operations after having been shut down since the middle of September. The fact that the reserve stock had all been sold, made it necessary to open up again in order to fill new orders. It is probable that the plant will continue operations until cold weather forces a shut-down.

The present year is expected to break records for the sale and consumption of face-brick, according to distributors in Cleveland, Ohio. An example of this is seen in the reports coming into the office of W. J. Rea, manager of the face-brick department of the Euclid Builders Supply Co. "We find this year will be the best in our history," says Mr. Rea, "with business about double that of last year. I look for this activity to continue through the winter."

Much the Largest Manufacturers of Much the Best Clayworking Machinery.


ELECTED
OHIO VOTES $6,000,000.00 FOR GOOD ROADS
GOOD ROADS ARE BRICK ROADS

Vote $6,000,000 for Good Roads

On November 2 ten Ohio counties voted to issue $6,000,000 in bonds to build good roads. There are 78 other counties in Ohio equally enthusiastic for good roads and innumerable cities building good streets.

The Whole Country Is Good Roads Hungry.

The only really good road is a BRICK ROAD and that isn't good unless the brick are good.

Brick manufacturers should take advantage of the great opportunity and produce the greatest number of No. 1 pavers that the most modern equipment will produce.

This is no time for poor brick or poor equipment.

Our 12-foot pan will do the work of three ordinary pans.

Our No. 290 Auger Machine, our No. 320 Cutter, our 291 Pug Mill and No. 292 Repress—all new machines—and our Haigh Kiln will help you make BRICK ROADS the STANDARD ROADS of the country.

It's worth while going after those millions being spent for good roads. We can surely help you by installing any or all these machines. We are building every machine or appliance you need and they are "Built Right and Run Right."

The American Clay Machinery Co., Bucyrus, Ohio

We Solicit the Large or Small Wants of Every Clayworker.

THE BUYERS' DIRECTORY

Of Clay Products Machinery Manufacturers

Analysts and Chemists, Clay.
Ceramic Sup. & Cons. Co.

Aerial Tramways.
Broderick & Bascom Rope Co.

Babbitt Metal.
Cleveland Alloys Co.
Fate, J. D. Co.
Gerlock, H. W.

Barrows and Trucks.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Fdry. Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Weller Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belts.
American Clay Machy. Co.
Bonnot Co.
Ceramic Sup. & Cons. Co.
Freese & Co., E. M.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Sawyer Belting Co.

Belt Conveyors.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Sup. & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Belt Dressing.
Cling-Surface Co.

Belt Fasteners.
Crescent Belt Fastener Co.

Boilers.
(See Engines and Boilers.)

Brick Conveyors.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Link-Belt Co.
Manufacturers Equipment Co.

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars.
American Clay Machy. Co.
Atlas Car & Mfg. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Pettigrew Foundry Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.
Wellington Machine Co.

Car Movers.
Marion Mach., Fdry. & S. Co.

Cartons (Mailing).
Hinde & Dauch Paper Co.

Castings.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Gerlock, H. W.
Link-Belt Co.
Manufacturers Equipment Co.

Cement Filler.
Lehigh Portland Cement Co.

Chains (Steam Shovel).
Woodhouse Chain Works.

Clay Feeders and Mixers.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Schaffer Eng. & Equipment Co.
Steele & Sons, J. C.
Stevenson Co.

Clay Gatherers.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Clay Steamers.
American Clay Machy. Co.
Schaffer Eng. & Equipment Co.

Coloring.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Conveying Machinery.
(See Elevators and Conveyors.)

Counters.
Ceramic Supply & Cons. Co.

Crushers and Pulverizers.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Wallace Mfg. Co.
Wellington Machine Co.

Cutters, Automatic Rotary.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

Cutting Wires.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Webb Wire Works.

Dies.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Nuttall Co., R. D.
Weller Mfg. Co.

Disintegrators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equip. Co.
Marion M. Fdry. & Sup. Co.

Door Carrier (Dry Kiln).
Dry Kiln Door Carrier Co.

Dryers.
American Clay Machy. Co.
American Process Co.
Bartlett Snow & Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Philadelphia Textile Mchy. Co.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Trautwein Dryer & Eng. Co.
Wellington Machine Co.

Dryers (Sand).
American Process Company.
Ceramic Supply & Cons. Co.
Fate, Co., The J. D.
Jackson & Church Co.
Schaffer Eng. & Equip. Co.

Dry Pans.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Stevenson Co., The.

Dry Press Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.

Dynamos.
General Electric Co.
Westinghouse El. & Mfg. Co.

Electric Shovels.
American Clay Machy. Co.
Link-Belt Co.
Thew Automatic Shovel Co.

Electrical Instruments.
Brown Instrument Co.
Engelhard, Chas.
General Electric Co.
Taylor Instrument Companies.

Elevator Buckets.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Elevators and Conveyors.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Clearfield Machine Shops.
Fate, J. D. Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodrich Co., B. F.
Link-Belt Co.
Main Belting Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Engines and Boilers.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.

Excavators.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Engineers and Builders.
American Clay Machy. Co.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Copping Bros.
Freese & Co., E. M.
Smith Co., Claude.
Trautwein Dryer & Eng. Co.

Explosives.
Du Pont Powder Co.

Fans.
American Blower.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Canton Grate Co.
Freese & Co., E. M.
Jackson & Church Co.
Murray Iron Wks. Co.

Filler (Paving.)
Barrett Mfg. Co.
Lehigh Portland Cement Co.

Filter Presses.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Stevenson Co., The.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Cleaners.
Marion Mach. Fy. & Sup. Co.

Frogs and Switches.
Cincinnati Frog & Switch Co.

Gears.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Fate, J. D. Co.
Chambers Bros. Co.
General Electric Co.
Link-Belt Co.
Nuttall Co., R. D.

Granulators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Wallace Mfg. Co.

Grates and Grate Bars.
Armstrong Mfg. Co.
Brewer & Co., H.
Canton Grate Co.
Chambers Bros. Co.
Cyclone Grate-Bar Co.
Fate, J. D. Co.
Gerlock, H. W.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Mach., Fdry. & S. Co.
Murray Iron Wks. Co.
Smith Co., Claude.

Grease.
Stock Xylite Grease & Oil Co., G. B.

Hand Power Presses.
Fate, J. D. Co.

Hoists.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Link-Belt Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Block Machinery.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

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Taylor Instrument Companies.

Kilns.
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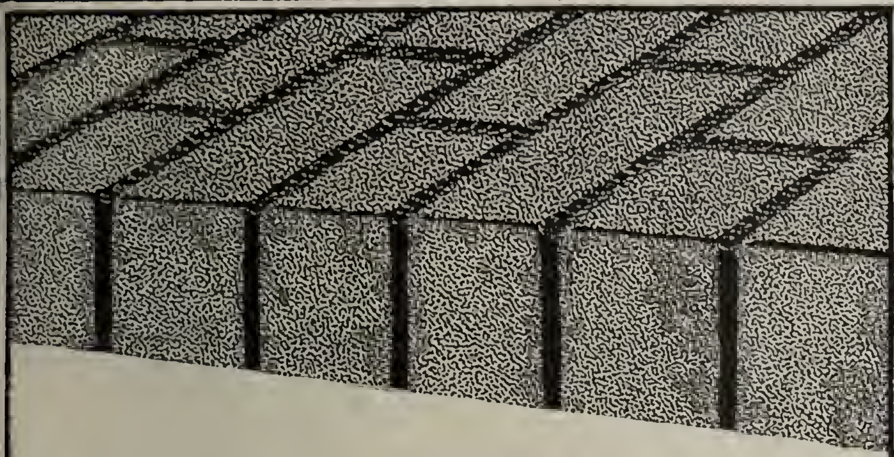
Bonnot Co.
Chambers Bros. Co.
Didier-March Co.
Fate, J. D. Co.
Hook Patent Kiln Co.
Manufacturers Equipment Co.
McManigal Grateless Furnace Co.
Schaffer Eng. & Equip. Co.
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

Kiln Accessories.
Caldwell Co., W. E.
Fate, J. D. Co.
Gerlock, H. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Tecktonius Mfg. Co., E. C.

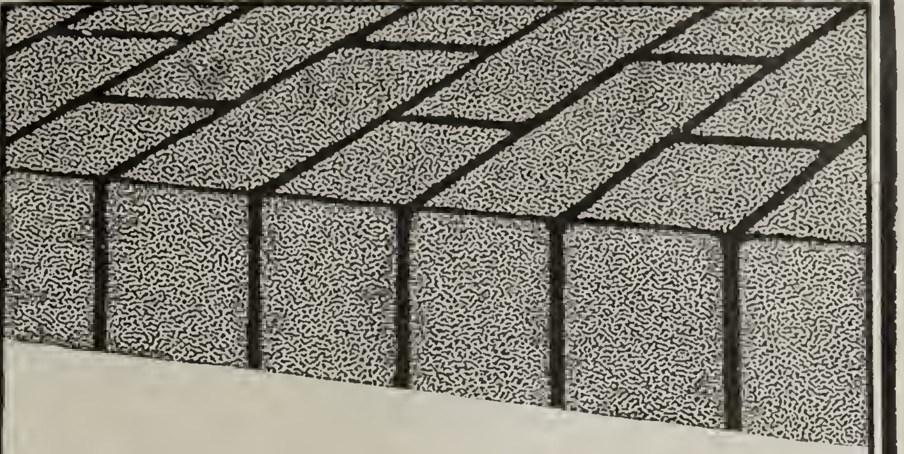
Lime Mixers.
Gerlock, H. W.

Locomotives (Electric).
Atlas Car & Mfg. Co.
General Electric Co.



In Cold Weather

the blocks contract, the joints widen, the pitch sinks and keeps the seal intact.



In Hot Weather

the blocks expand, the joints grow narrow, the pitch squeezes upward. The seal is intact.

Barrett's PAVING PITCH

Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, especially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

Booklets on request

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N.B. Halifax, N.S. Sydney, N.S.

THE BUYERS' DIRECTORY—Continued

Locomotives (Gasoline).
Baldwin Locomotive Works.
Fate, J. D .Co.

Locomotives (Steam).
Dewey Bros., Inc.

Lubricants
Stock Xylite Grease & Oil Co., G. B.

Manganese.
Roessler & Hasslacher Chemical Co.

Mortar Colors.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Molds.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Wellington Machine Co.

Mold Sanders.
American Clay Machy. Co.
Bonnot Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co.
Wellington Machine Co.

Motors—Electric.
General Electric Co.
Westinghouse El. & Mfg. Co.

Oil Burners.
Chicago Brick Machy. Co.
Weller Mfg. Co.

Oil Filters.
Canton Grate Co.

Paints.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate, J. D. Co.
Freese & Co., E. M.
Jackson & Church.
Manufacturers Equipment Co.

Pallets and Trays.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

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Peck, Herbert E.

Perforated Sheet Metal.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Hendrick Mfg. Co.

Poidometers.
Schaffer Eng. & Equip. Co.

Portable Track.
Atlas Car & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.

Potters' Machinery.
Bonnot Co.
Baird Machine & Mfg. Co.
Fate, Co., The J. D.

Powder.
Du Pont Powder Co.

Power Plant Equipment (Complete).
American Clay Machy. Co.
Bonnot Co.
Jackson & Church Co.
Link-Belt Co.
Murray Iron Wks. Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Baird Machine & Mfg. Co.
Link-Belt Co.

Pug Mills.
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Bonnot Co .
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Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Steele & Sons, J. C.
Stevenson Co., The.
Wallace Mfg. Co.
Wellington Machine Co.

Pulverizers.
(See Crushers.)

Pyrometers.
Beighlee Instrument Co.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Stupakoff Laboratories.
Taylor Instrument Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.

Rails (Frogs and Switches).
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Bonnot Co.
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Engineering Co.

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American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

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Brown Instrument Co.
Ceramic Sup. & Cons. Co.
Price Electric Co.
Taylor Instrument Companies.

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Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
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Lakewood Engineering Co.
Steele & Sons, J. C.

Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Cons. Co.

Rope Preservative.
Cling-Surface Co.

Roofing Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Fate, J. D. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.

Sand Dryers.
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American Process Co.
Bonnot Co.
Fate Co., The J. D.
Jackson & Church Co.
Schaffer Eng. & Equip. Co.

Sand Lime Brick Machinery.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
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Bonnot Co.
Brewer & Co., H.
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Lakewood Engineering Co.
Link-Belt Co.
Schofield-Burkett Cons. Co.
Stevenson Co., The.
Weller Mfg. Co.

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American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Stevenson Co.

Silent Chain Drives.
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Soft Mud Brick Machines.
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Bartlett & Snow Co., C. O.
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Chambers Bros. Co.
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Wallace Mfg. Co.
Wellington Machine Co.

Steamers (Clay).
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Steam Separators.
Canton Grate Co.

Steam Shovels.
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Marion Steam Shovel Co.
Thew Auto Shovel Co.

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Ties (Steel) and Tie Plates.
Cincinnati Frog & Switch Co.

Steel Towers.
Caldwell Co., W. E.

Supplies.
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Bonnot Co.
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Manufacturers Equipment Co.
Steele & Sons, J. C.
Stevenson Co., The.
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Weller Mfg. Co.
Wellington Machine Co.

Tanks.
Caldwell Co., W. E.

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Price Electric Co.
Manufacturers Equipment Co
Standard Dry Kiln Co.

Tile Machinery.
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Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Wallace Mfg. Co.
Wellington Machine Co.

Time Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Traffic Counselor.
Preetorius, I.

Unloading Devices for Pans.
American Clay Machy. Co.
Bonnot Co.

Watchman's Clocks.
Hardinge Bros., Inc.
Newman Clock Co.

Water Tanks.
Caldwell Co., W. E.

Wheelbarrows.
(See Barrows and Trucks.)

Winding Drums.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, F. & S. Co.
Weller Mfg. Co.

Wire Rope.
Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

What Brick Drier is This?

It's the one that has been bringing clay products out *right* for over 25 years. What varieties of clays? *Every* variety that's worth manufacturing. The Standard Drier knows no limitations.

Ask some users about it. Let us send you the catalog, containing a list of them. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

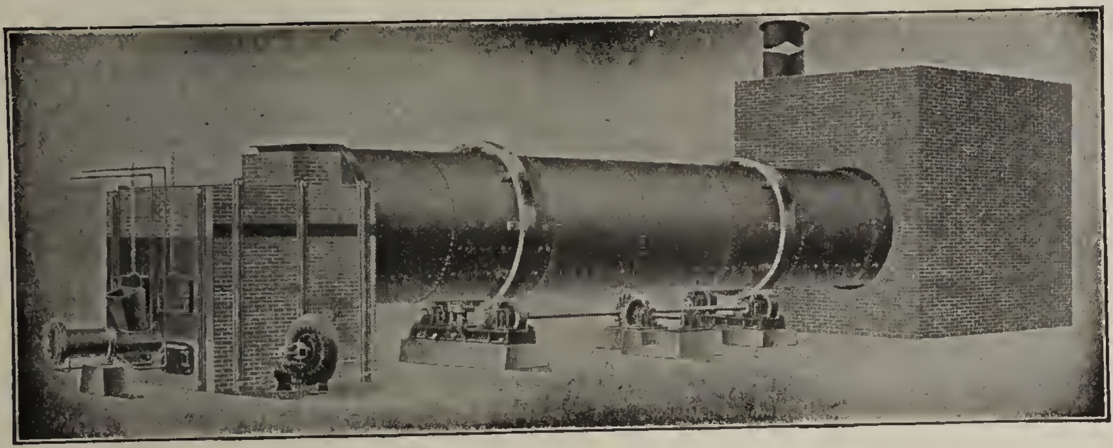
SAY "I SAW IT IN" BRICK AND CLAY RECORD

THE CHASE DRYER CARS

With patented flexible and
reversible boxing and
roller bearings

The *Best Equipment* is the Equipment
that gives you the *Best Service*

The Chase Fdry. & Mfg. Company
Columbus, Ohio



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST

YOU CAN THEN OPERATE IN ANY
WEATHER OR SEASON

It Assures Uniform Product

YOU CAN THEN SCREEN TO
ELIMINATE PEBBLES, ETC.

American Process Co.
68 William Street
NEW YORK

How would you like to produce 95 per cent firsts with 20 per cent less fuel than you are using now? This need not be a mere wish—you can make it a reality by installing

The Beighlee Pyrometer

You can then control your kiln temperature perfectly. All we ask is an opportunity to talk this over with you. We are sure we can render you a valuable service.

Beighlee Electric Co. CLEVELAND, OHIO, U. S. A.

Gibb Instrument Co., Highland Bldg., Pittsburgh, Pa., Representative in Pennsylvania and Virginia.

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A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
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8,000 SOFT MUD BRICK PER HOUR

is the guaranteed capacity of our brick machine with automatic mold dumper combined.

¶ If you wish to increase your output and decrease the cost of production, you should investigate our complete equipment for making 60,000 brick in eight hours with

BUT FIVE MEN IN THE MACHINE ROOM

The C. O. Bartlett & Snow Company, Cleveland, O., U. S. A.

Twenty to Forty Per Cent Saved in Power

YOUR own Mechanical Engineer will tell you that Cast Tooth Gears waste in power more than ten times their first cost, while the efficiency of Machine Cut Spur Gears is 95 to 98%.

Send for the Proof—Bulletin 19.
Prove it yourself by Nuttall Cut Gears.

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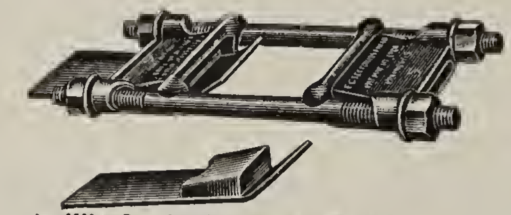

Gives Permanency to Kiln Construction. Insures Safety to Kiln Contents.

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HOW TO ANALYZE CLAY

A practical work for practical people. A Text Book for Clay Analysis, by Holden M. Ashby, Prof. of Organic Chemistry, Harvard Medical College, and Instructor Chicago Night School of Chemistry. An Aid to Beginners and full instructions for making clay analyses. 64 pages, with illustrations. Postpaid to any address in the world, $1.00

Brick and Clay Record, 445 Plymouth Court, Chicago

PAVING BRICK MANUFACTURERS

You will find the following circulars (reprints of articles appearing in "Brick and Clay Record") very helpful in fighting competitive materials.

The Truth about the Wayne County Roads (From October 7, 1913, issue)	100 500 1000	$ 2.50 12.00 20.00
Creosoted Block a Failure (From November 4, 1913, issue)	100 500 1000	$ 2.00 5.00 8.50
Governor Glynn Urges Use of Brick Roads (From April 7, 1914, issue)	100 500 1000	$ 4.00 15.00 20.00

BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

In Stripping Your Overburden—

You can replace a series of machines and equipment by one machine, which combines the three necessary features—digging, conveying (a distance of five hundred feet or more) and dumping—at any desired point—all under the positive control of **one operator.**

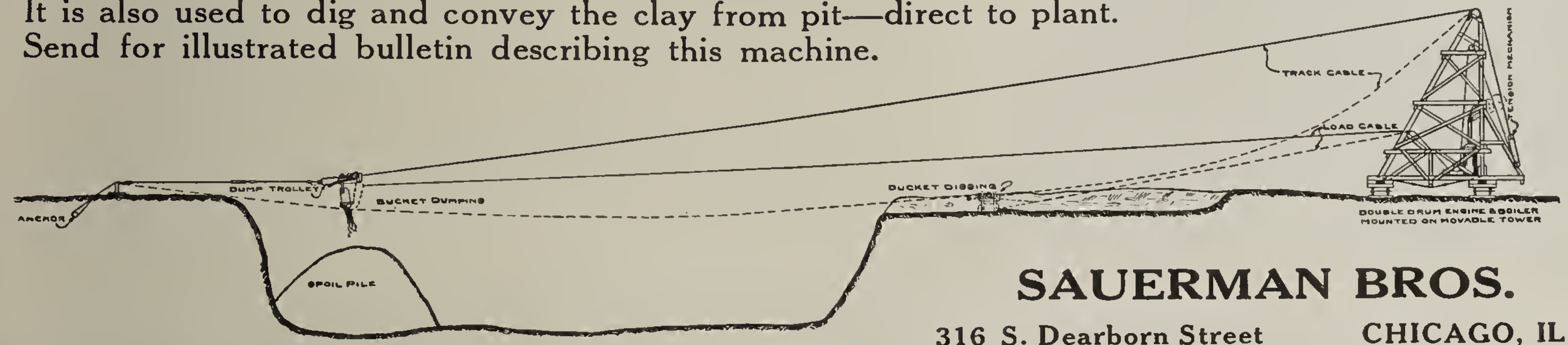
The Sauerman Dragline Cableway Excavator

(Patented)

operated by a double drum friction hoist, and under the positive control of one man fulfills these requirements, and does the work more efficiently and more economically than any other known method.

It is also used to dig and convey the clay from pit—direct to plant.

Send for illustrated bulletin describing this machine.



SAUERMAN BROS.

316 S. Dearborn Street CHICAGO, ILL

TRADE **SAWYER** MARK Registered STITCHED CANVAS BELTING + TRADE **SAWYER** MARK Registered SERVICE = PERFECT SATISFACTION

Your belting problems will be quickly solved if you adhere to this simple formula practiced for twenty-five years by brick men in every clay-working section of the world:

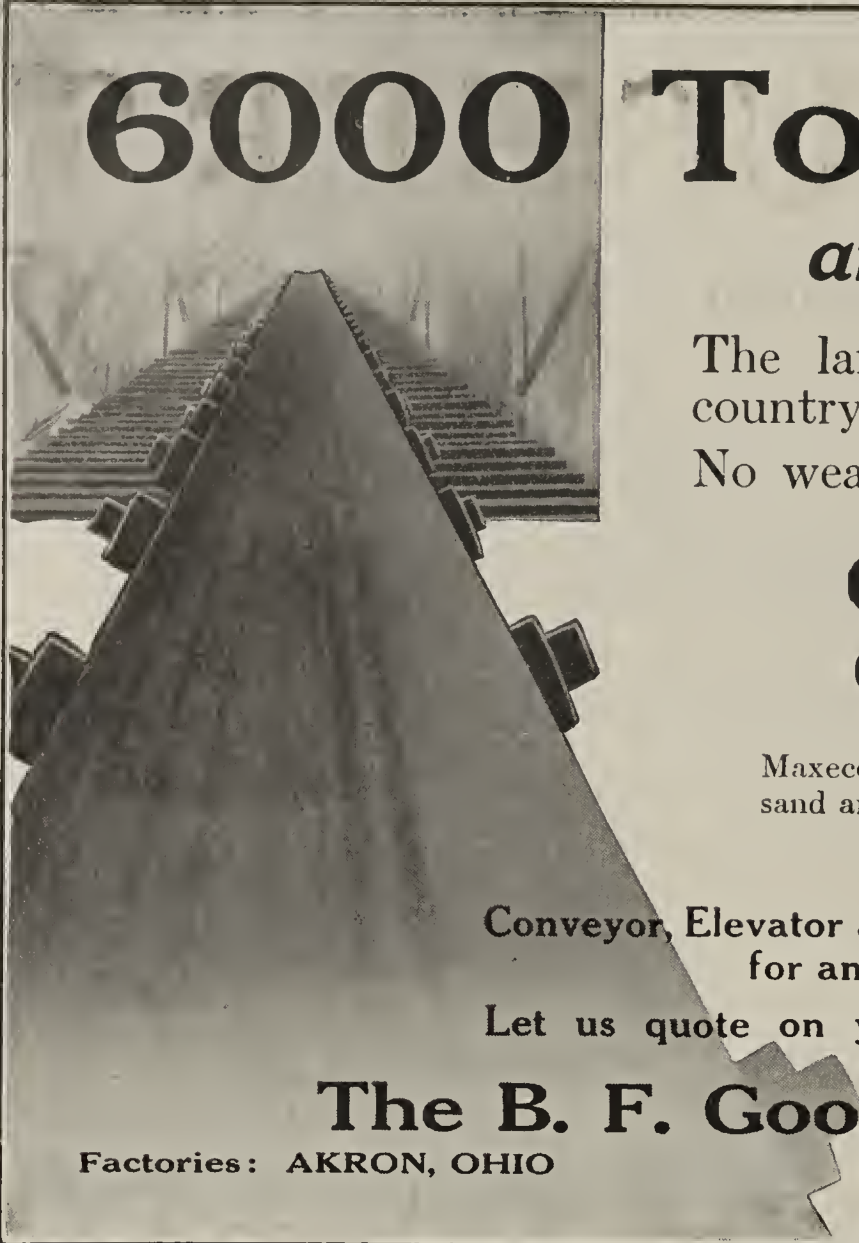
IN EVERY PART OF YOUR PLANT USE NOTHING BUT TRADE **SAWYER** MARK Registered

More than a quarter of a century ago our engineers began a study of the needs of brickmen—they soon found that no belt but the very best would stand the severe requirements in clay plants—a belt that would resist grit and abrasive material, one that would not slip, one that would permit of a constant and uniform power applied to every unit of machinery—our engineers found this out and then devised the belt that is today the brickman's standard:

TRADE **SAWYER** MARK Registered **STITCHED CANVAS BELTING**

SAWYER BELTING COMPANY, CLEVELAND OHIO, U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD



6000 Tons a Day

and no signs of wear

The largest sand and gravel plant in the country installed this belt in March, 1915.

No wear — no shut downs — that's service!

GOODRICH Conveyor Belt

Maxecon brand, 36 in. wide, 6 ply, 450 ft. long, conveys sand and gravel at a 20 degree angle from trommel underneath track hopper to washing plant.

Conveyor, Elevator and Transmission Belts for any service.

Let us quote on your next installation.

The B. F. Goodrich Company

Factories: AKRON, OHIO **Branches in All Principal Cities**

Instrument perfection has been reached in our Multiple Recorders. They give a permanent Time-Temperature Record on a maximum of Six.

HERAEUS Le Chatelier PYROMETER

"The ultimate pyrometer"

Each record is absolutely and clearly defined from the others. The Instruments have a separate indicating scale for observation. The charts are continuous and have rectangular coordinates. There is no ink or other recording medium to stick or smear or to be replenished. Pen friction is entirely eliminated.

Their extremely high resistance (about 500 ohms) makes possible the use of both Indicating and Recording Instruments on the same Thermocouples, allowing the use of a central Indicating System for the burners and a Recording System for the Superintendent in his office.

With such a system better results can be obtained and the expense of an entire Recording Installation is made unnecessary.

We Supply Pyrometer Installations

"MADE FOR YOU" not "MADE TO DO"

Let Us Figure on Your Requirements

CHARLES ENGELHARD 30 Church Street
NEW YORK

CLAY CRUSHERS

IF MARKED
BREWER
IT'S GOOD

To suit the particular needs of every manufacturer of Clay Products—No matter what the nature of your clay.
We build any size required—and every type, including

CONICAL, STRAIGHT AND BEADED ROLL
COMPOUND CRUSHERS
DISINTEGRATORS DRY PANS

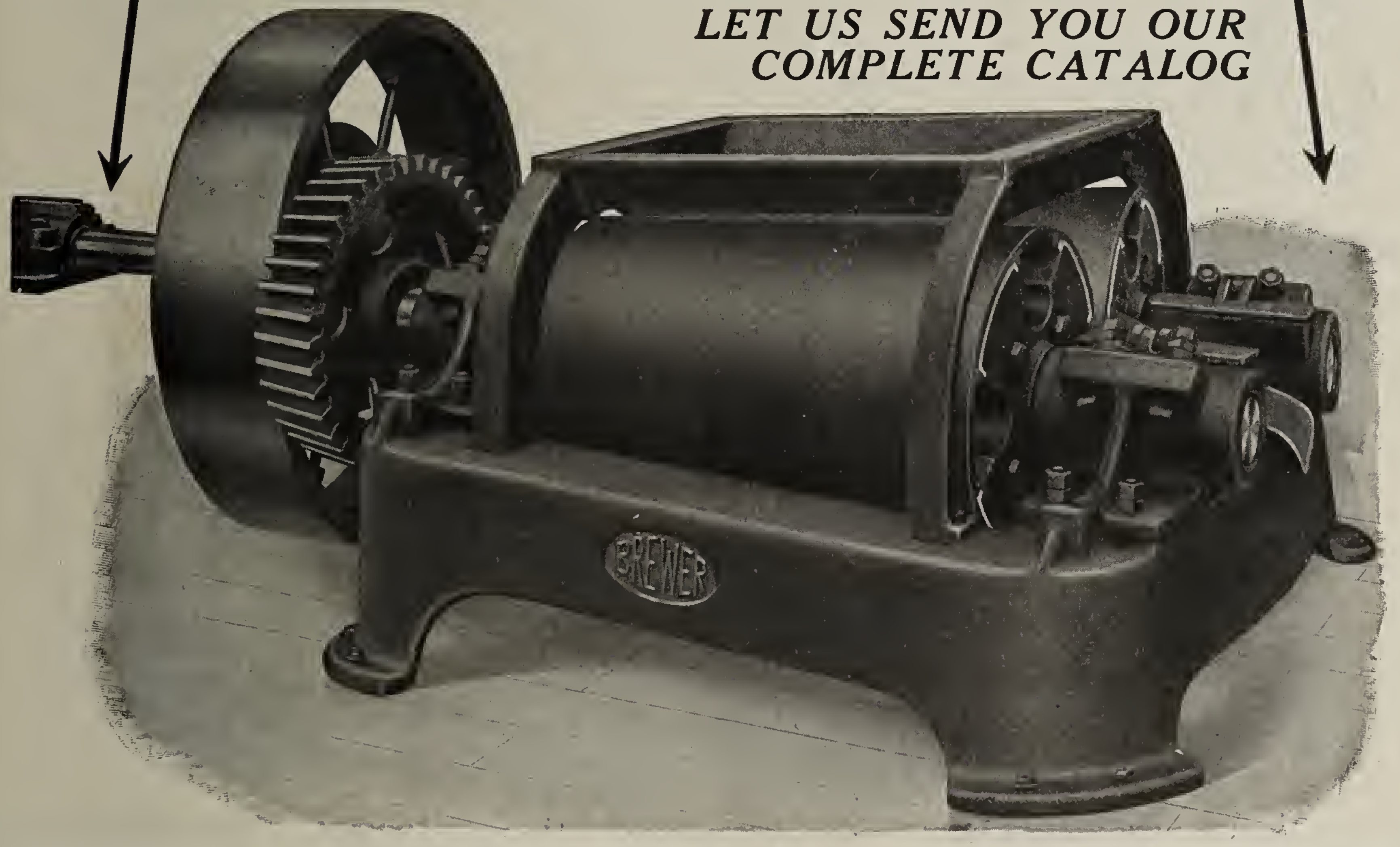
IF MARKED
BREWER
IT'S GOOD

We make the rolls with removable shells—the shells made of a special hard durable material that outwears manganese steel or any other material, compared on a cost basis.

AND——

We also make Brick Machines, Automatic Cutters, Drain Tile Machines, Pug Mills, Hoists, Granulators, Conveyors, Etc.

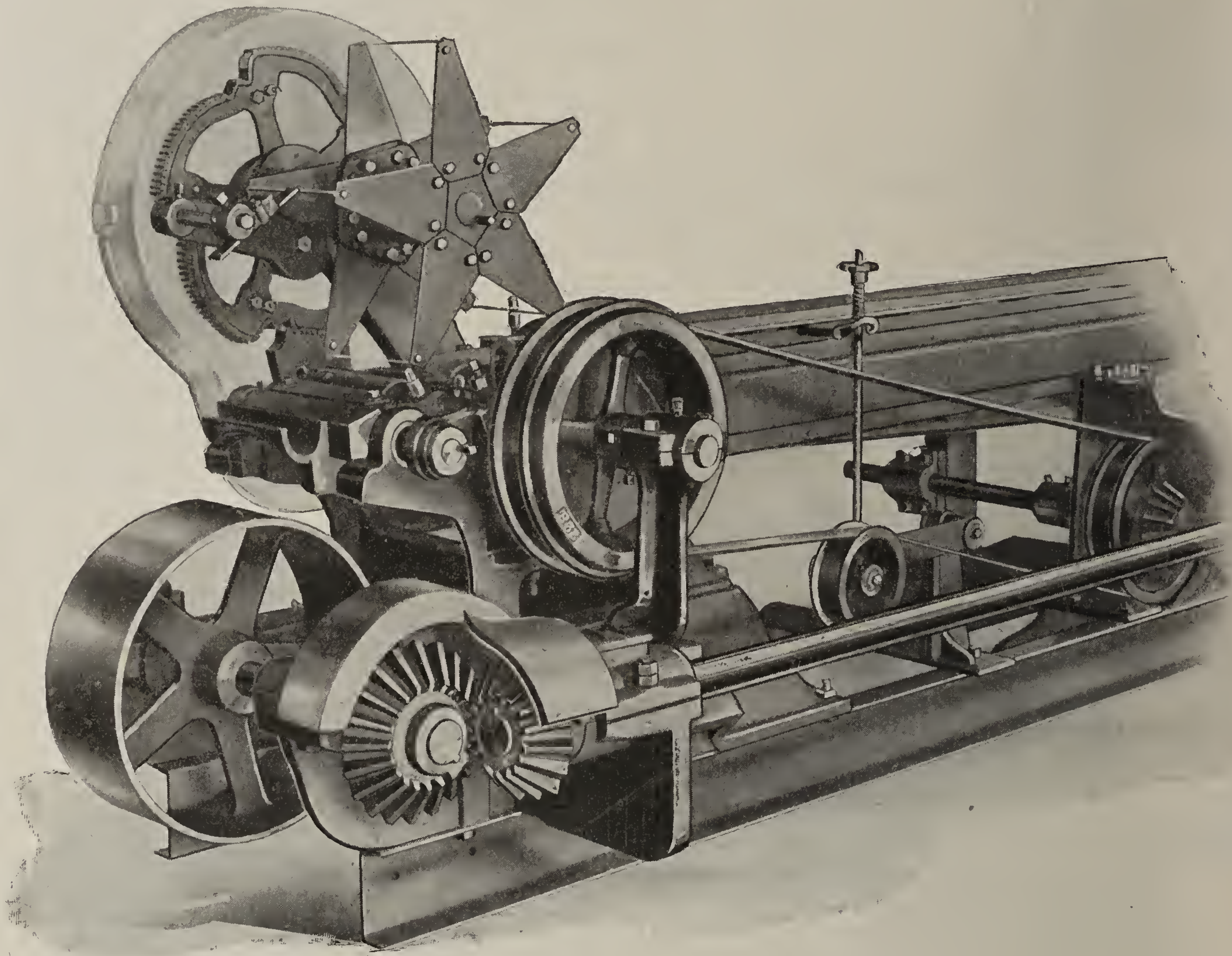
LET US SEND YOU OUR COMPLETE CATALOG



H. BREWER & COMPANY, Tecumseh, Mich.

SAY I SAW IT IN BRICK AND CLAY RECORD

Consider the Advantage in Straight Cut Brick



You have certainly heard of the perfect work of the Steele End Cutter.

Did you ever see a cutter so simple and reliable looking?

If you have any doubts about the superior principle or workmanship of this cutter frankly ask us to show you.

Will handle the largest capacities. Will work with any machine.

Nearly a thousand in use.

Would you like your competitor to put in this cutter first?

J. C. STEELE & SONS, Statesville, N. C.

George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

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Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax,Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.)Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co.. Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Brocade—Euclid Builders Supply Co., Cleveland, O.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus. O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Citadel—Citadel Brick & Paving Block Co., Ltd., Quebec.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Cubans—Euclid Builders Supply Co., Cleveland, O.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter,S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Fisklock—Fiske & Co., Inc., Boston and New York.
Flash—W. B. Ferris Brick Co., Columbus, O.
Ginger—Fraser-Myers Co., Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
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Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Grid—Fiske & Co., Inc., Boston and New York.
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Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottry—B. Mifflin Hood Brick Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nibatco—North Iowa Brick & Tile Co., Mason City, Iowa.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Nuyoco—New York Clay Pro. Co., Van Deventers, N. J.
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Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
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Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
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Rustique Oriental—Martinsville (Ind.) Brk. Co.
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Scotia—Nova Scotia Clay Works, Halifax, Can.
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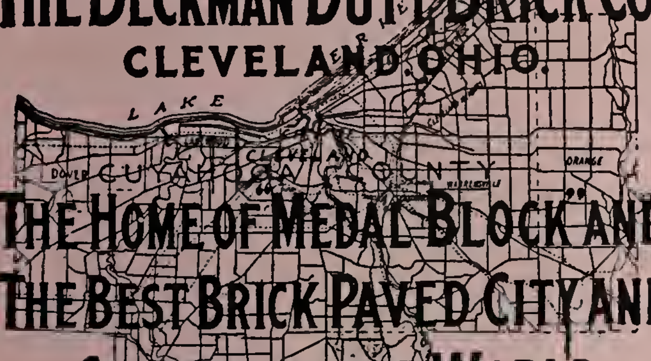

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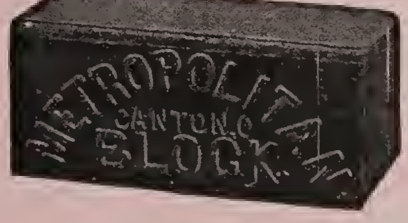

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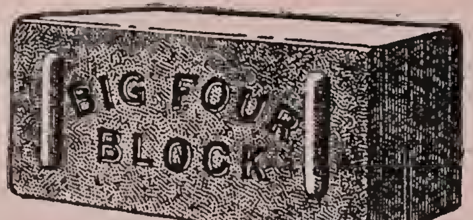

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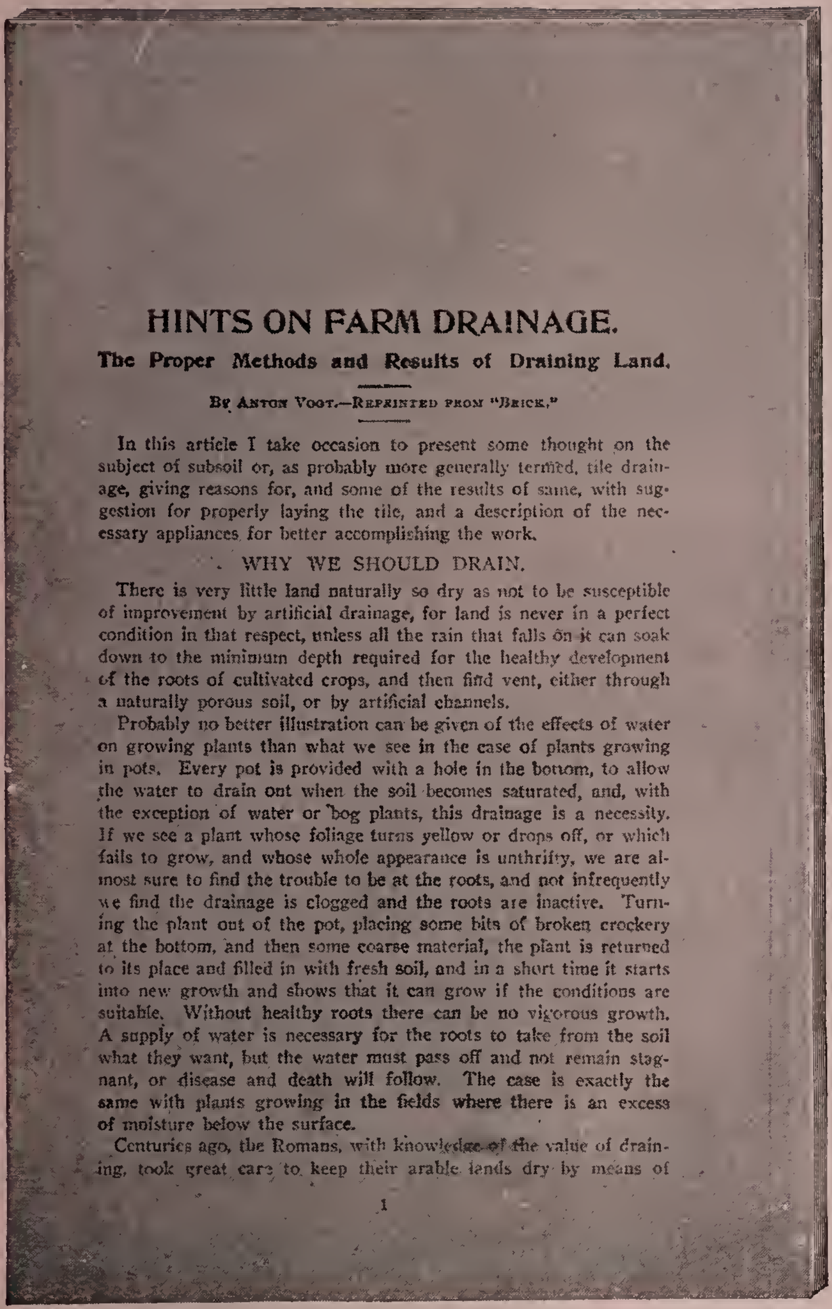

HINTS ON FARM DRAINAGE.

The Proper Methods and Results of Draining Land.

BY ANTON VOGT.—REPRINTED FROM "BRICK."

In this article I take occasion to present some thought on the subject of subsoil or, as probably more generally termed, tile drainage, giving reasons for, and some of the results of same, with suggestion for properly laying the tile, and a description of the necessary appliances for better accomplishing the work.

WHY WE SHOULD DRAIN.

There is very little land naturally so dry as not to be susceptible of improvement by artificial drainage, for land is never in a perfect condition in that respect, unless all the rain that falls on it can soak down to the minimum depth required for the healthy development of the roots of cultivated crops, and then find vent, either through a naturally porous soil, or by artificial channels.

Probably no better illustration can be given of the effects of water on growing plants than what we see in the case of plants growing in pots. Every pot is provided with a hole in the bottom, to allow the water to drain out when the soil becomes saturated, and, with the exception of water or bog plants, this drainage is a necessity. If we see a plant whose foliage turns yellow or drops off, or which fails to grow, and whose whole appearance is unthrifty, we are almost sure to find the trouble to be at the roots, and not infrequently we find the drainage is clogged and the roots are inactive. Turning the plant out of the pot, placing some bits of broken crockery at the bottom, and then some coarse material, the plant is returned to its place and filled in with fresh soil, and in a short time it starts into new growth and shows that it can grow if the conditions are suitable. Without healthy roots there can be no vigorous growth. A supply of water is necessary for the roots to take from the soil what they want, but the water must pass off and not remain stagnant, or disease and death will follow. The case is exactly the same with plants growing in the fields where there is an excess of moisture below the surface.

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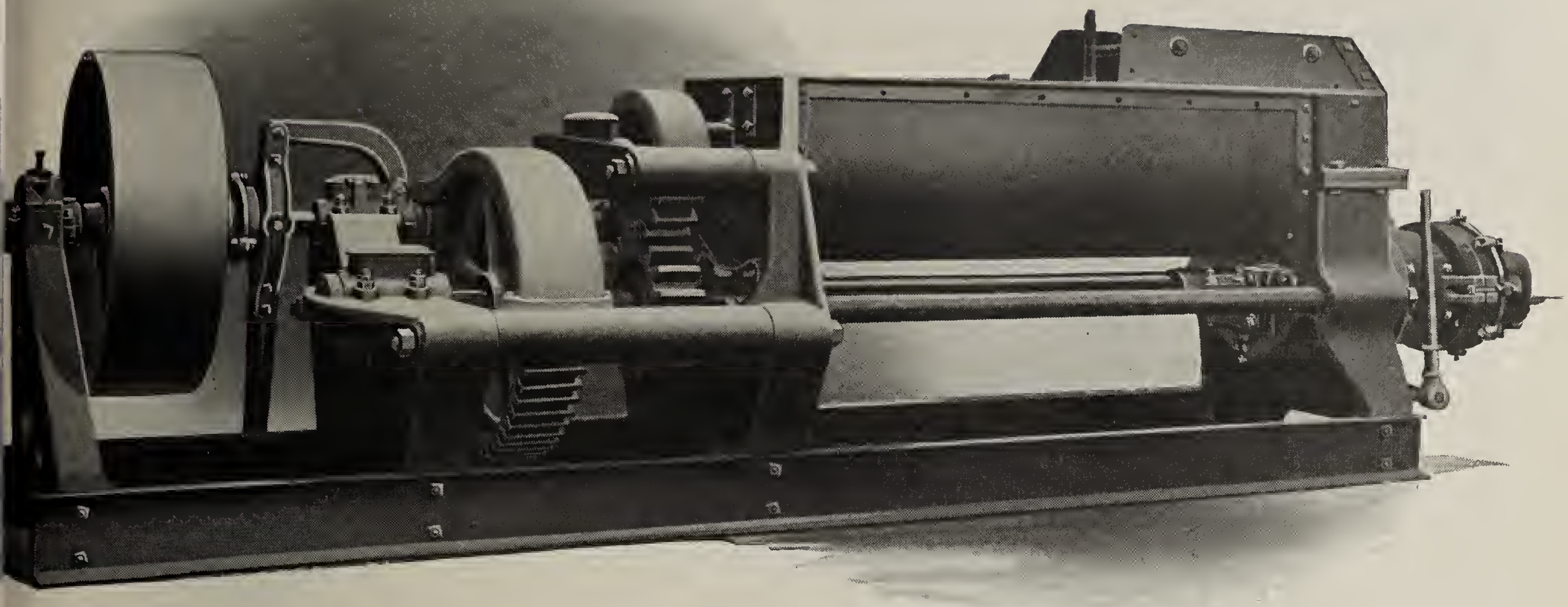

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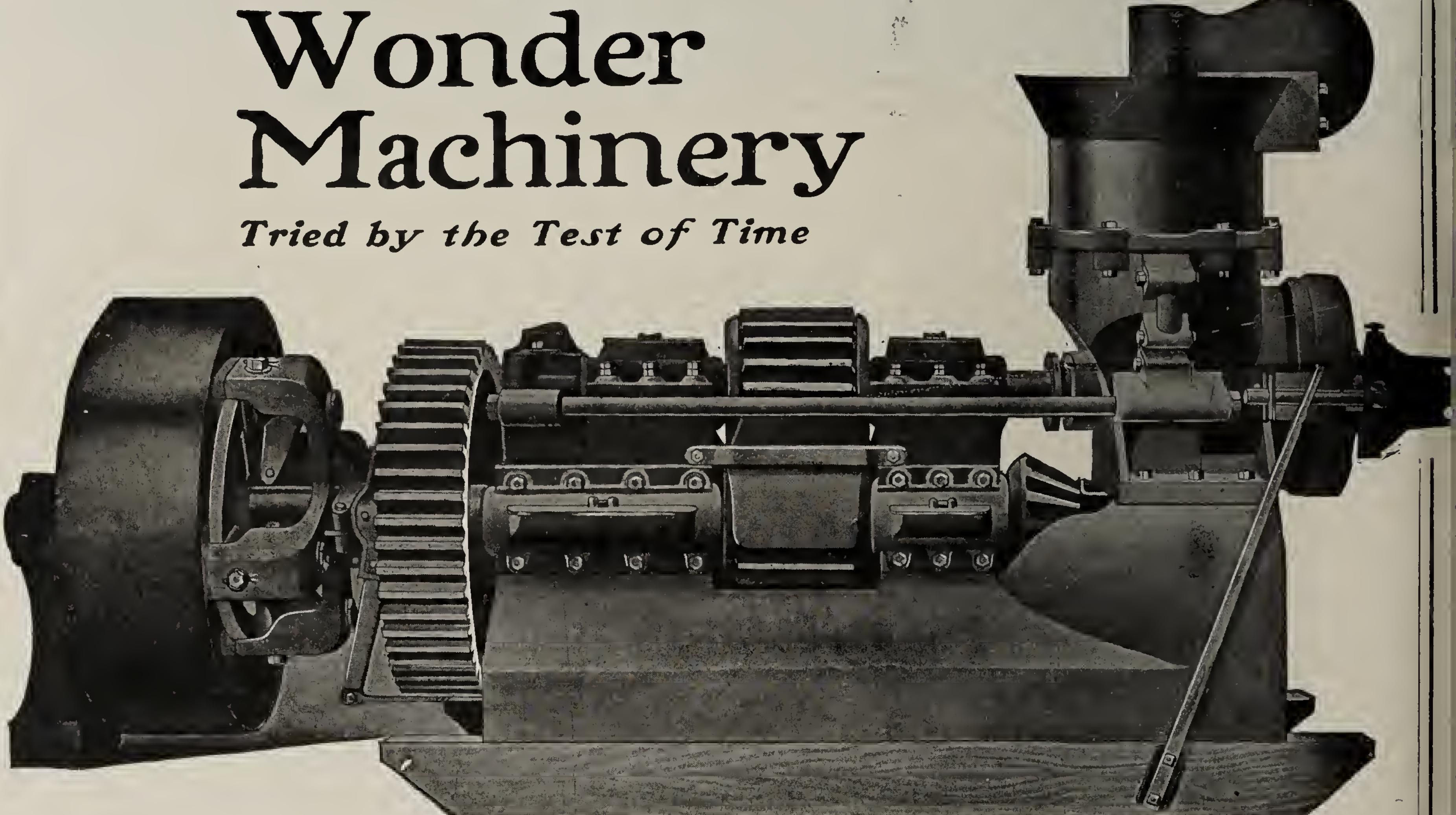

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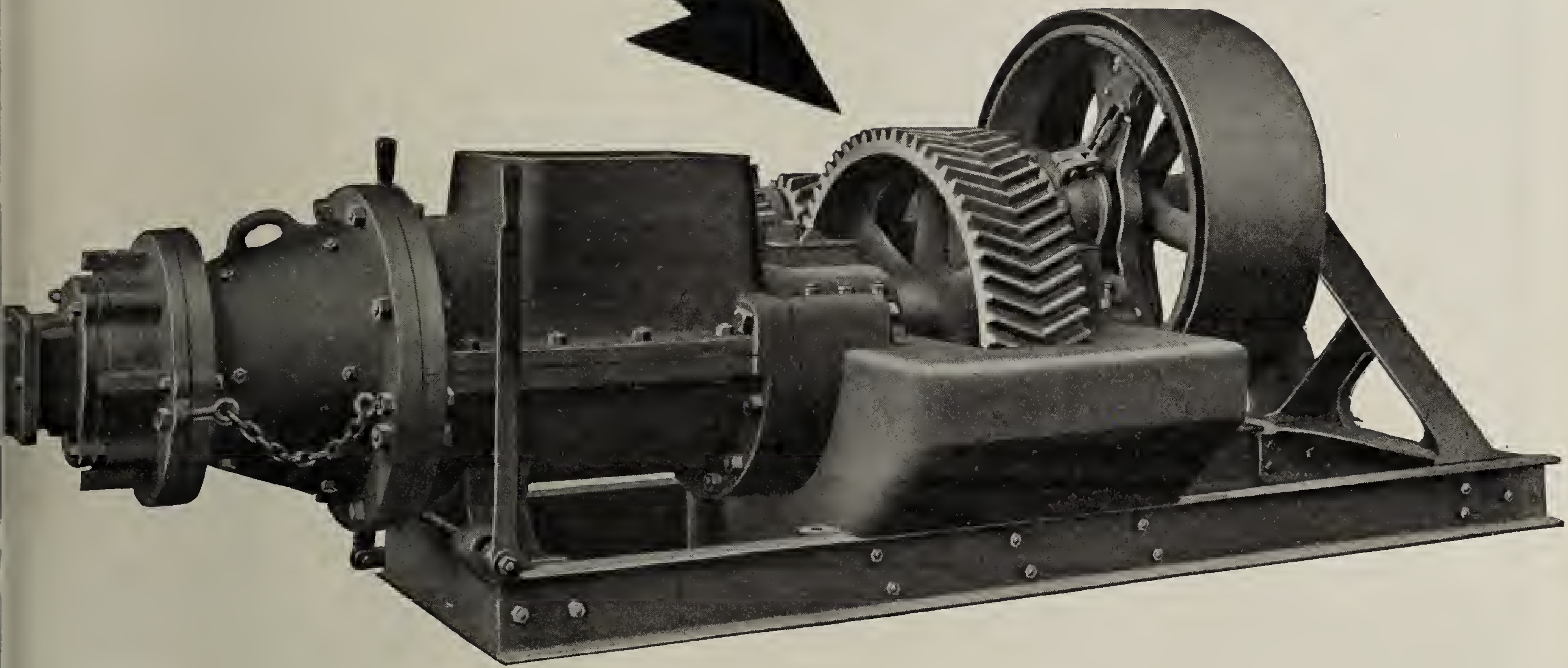

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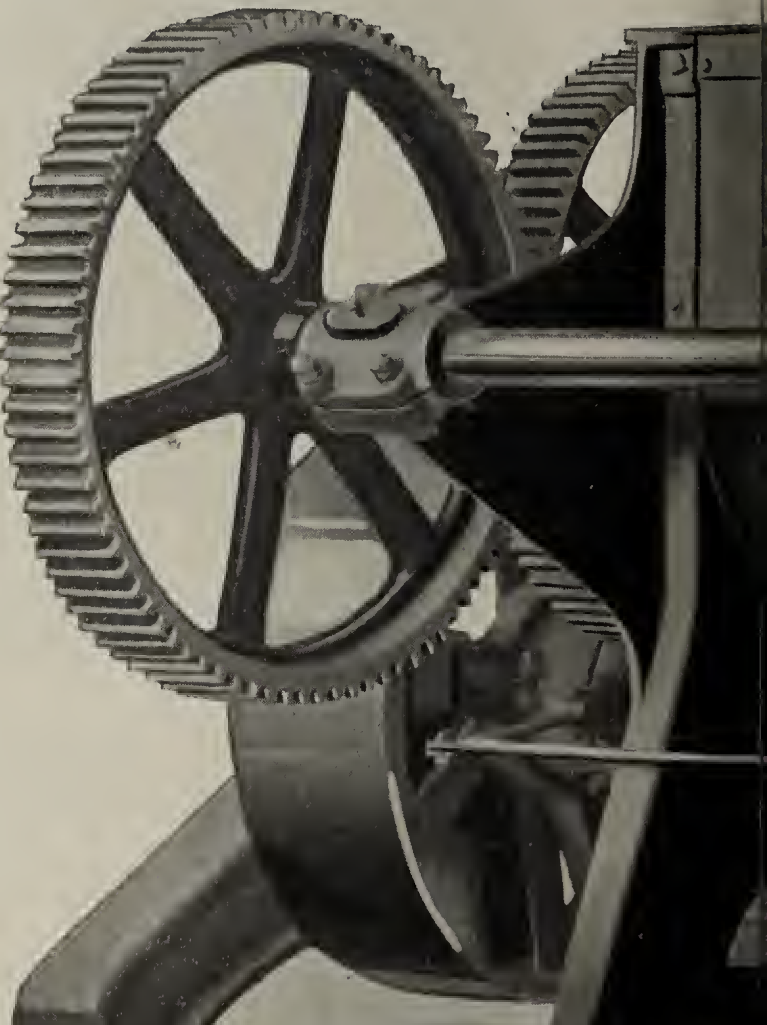

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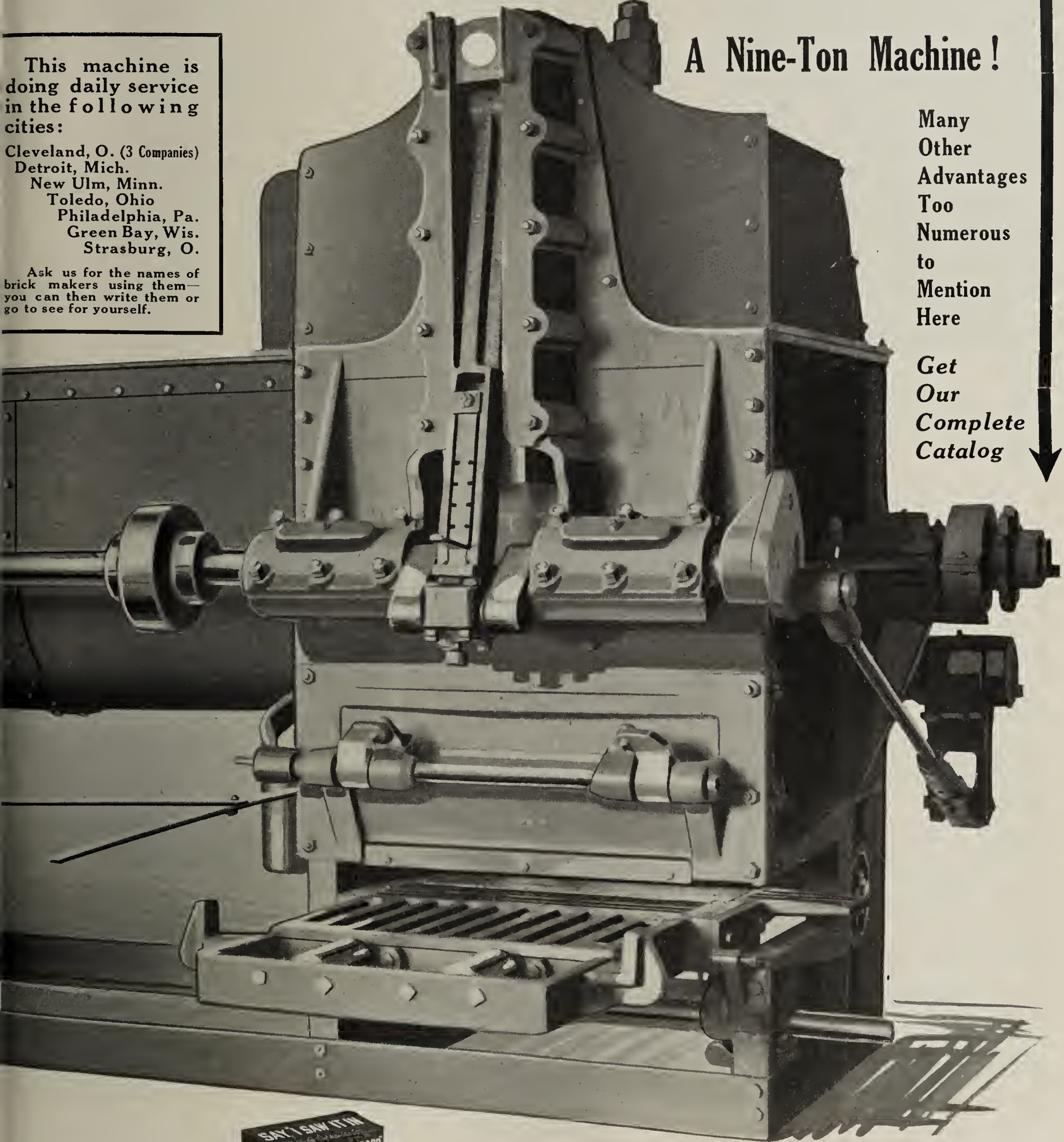


SAY "I SAW IT IN BRICK AND CLAY RECORD"

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. . Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany allorders.

WANTED—HELP.

WANTED—A competent dry-press-brick operator, one that has had experience. Not in the country but in a town of 10,000 inhabitants. Address: 11-BE, care of "Brick and Clay Record." 11-2-2

WANTED—Practical burner for shale brick plant; good wages and permanent job for man that can give results. Address 12-Pennsylvania, care of "Brick and Clay Record." 12-2P

WANTED—Fire-brick setter; steady work. Address: 12B, care of "Brick and Clay Record." 12-TF

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

PARTNER WANTED—Can save 50 percent fuel used in burning down-draft kilns. Want owner of large clayworking plant, who has ample supply of good raw material, for partner. Give particulars of process, capacity, location and experience. Address: 11-BC, care of "Brick and Clay Record." 11-2-1

WANTED—POSITIONS.

SITUATION WANTED—By married man of 30, now employed; ceramic education at Ohio State University. Eight years' experience in paving block, refractories, roofing tile, sewer pipe, drain tile and glazed ware. Best of references. Salary to start, $250 per month. Address: 12-A, care of "Brick and Clay Record." 12-1P

POSITION WANTED—Practical superintendent of brick and tile work of wide experience wants position with good firm. Good reference. Might buy some stock. Correspondence confidential. Address: 10BD, care of "Brick and Clay Record." 10-2-1P

WANTED—Superintendent's position by practical up-to-date clayworker; over 25 years' experience in brick, hollow ware and drain tile; competent in construction and equipment as well as operation. Reply to 12-H, care of "Brick and Clay Record." 12-1

WANTED—Position as superintendent of paving, brick or tile plant, by experienced man from clay pit to office. No. 1 burner. Best reference. Address: 12-M, care of "Brick and Clay Record." 12-2P

POSITION WANTED—As superintendent or manager of brick or pipe plant. Seventeen years' experience; can give reference. Address: 12-C, care of "Brick and Clay Record." 12-1P

WANTED—Position. Expert setter, burner, brancher, molder, mold-maker, or foreman any clay products. Box 28, Huntsburg, Ohio. 12-1

WANTED—Position as sewer-pipe pressman. Understands machinery. Address: 12-D, care of "Brick and Clay Record." 12-1P

WANTED—EQUIPMENT

WANTED—Two second-hand wet pans. Give name of maker, condition and price. Address: 12-G, care of "Brick and Clay Record." 12-1P

WANTED—Second-hand Williams' pulverizer. Give price and condition. Address: 12-F, care of "Brick and Clay Record." 12-1P

WANTED—3,800 steel pallets, 34½ inches by 12 inches. Address: 12-E, care of "Brick and Clay Record." 12-1

WANTED—30 double-deck cars, cast frame and standards preferred. Also automatic end brick cutter, Steele & Sons latest pattern. Give full particulars in first letter. Spot cash. Address: 11-BB, care of "Brick and Clay Record." 11-2TF

WANTED

Engineers having large offices, with telephone service, in the center of Paris, France, desire to represent reliable manufacturing concerns. Address: 11-BH, care of "Brick and Clay Record." 11-2TF

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Albert H. Mueckler, Trustee, Manistee, Mich.

FOR SALE—CLAYWORKING PLANTS.

FOR SALE—A dry-press brick plant, 120 acres of shale and fire-clay land, underlaid with coal; also 18 acres in townsite, together with numerous buildings, kilns and equipment. For further information, address: John C. Bronaugh, 2331 Grand Ave., Kansas City, Mo. 11-2TF

FOR SALE—Brick and tile plant; good location, modern equipment. Air dryer capacity, 22,000 brick or 44,000 six-inch tile. Good shipping trade. Fifteen feet of excellent surface clay which makes good 18-inch tile. Coal very cheap. Goes with 5 acres of land and seven-room house, in good condition. Baldridge & Son, Illiopolis, Ill. 12-1P

FOR SALE—Fully equipped brick plant located at Owensboro, Ky. Only machine plant in this city of 17,000 people. Reason for selling: am engaged in Government Building Construction. Bargain. R. P. Farnsworth, New Albany, Ind. 11-2-8

FOR SALE—Mendota tile factory, all in good condition. Splendid shipping facilities over three main railroads. Also, 2½ acres fine land, house and barn, for sale. Call on or write S. B. Stare, Mendota, Ill. 11-2TF

FOR SALE—SECOND-HAND MACHINERY

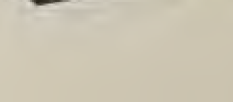
FOR SALE CHEAP TO SAVE MOVING.

One Hercules Special soft-mud brick machine.
One Brewer conical smooth roll crusher.
One disintegrator.
One New Departure brick and tile machine, with dies to 15 in.
One board delivery cutting table.
One Anderson 4-mold dry press.
One Drake No. 2 stiff-mud brick machine.
F. R. Carter, 119 Bridge St., Peoria, Ill. 12-4

FOR SALE—Arnold-Creager SSS soft-mud brick machine and mold-sander; 7,000 flat and 9,000 leg pallets, 10x34 galvanized steel with ⅝-inch rolled edge. Address Sphar Brick Company, Maysville, Ky. 12-2

FOR SALE—One No. 9 Brewer tile mill, two Atlas 35 h. p. engines, hoist, automatic cutting table, some good wood-split pulleys, belts and other machinery. Address Thompson Bros., Rolfe, Iowa. 12-TF

FOR SALE—Buckeye traction steam ditching machine, at one-fourth list price. D. B. Greathouse, Lewisport, Ky. 12-2P



FOR SALE, CHEAP—Four-ton Whitcomb gasoline motor for hauling clay cars. Thew ⅝-yd. steam shovel, Clearfield 9-ft. dry pan, Berg 4-mold dry press, Freese No. 1 brick machine with automatic cutter, Freese largest size automatic cutter, Stevenson 8 ft. wet pan, Arnold-Creager brick machine, Chambers 10 ft. pugmill, Blake 9x15 in. jaw crusher. The above machinery is all in good running order and much of it run only one season. C. H. Horton Co., Painesville, Ohio. 12-1

FOR SALE—Two Fate Special Premier brick machines, complete with Bensing automatic cutting tables, off-bearing belts, scrap conveyor belt, driving belt and all shafting and pulleys. One machine new, other machine slightly used and in A-1 condition. Also, two rotary dryers, 50 ft. long, 5 ft. diameter; 200 double-deck dryer cars manufactured by Chase Fdry, & Mfg. Co., practically new. Ajax Brick Co., P. O. Box 307, Detroit, Mich. 12-2

FOR SALE—One 4-mold Ross-Keller dry-press brick machine, in good condition. A full line of stoneware pottery machinery, and one 125 h. p. and one 75 h. p. Atlas engines, automatic governors. Star Clay Products Co., San Antonio, Texas. 12-1

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—Second-hand 3-mold Boyd press and 50 dryer cars, cheap. Missouri Fire Brick Co., St. Louis, Mo. 12-1

FOR SALE—Practically new: One 40 h.p. and one 60 h.p. high pressure boiler, one 100 h.p. slide valve engine, 9 ft. American dry pan and clay elevator, No. 88 Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 8 ton of 16-lb. rails, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 5-2-TF.

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. Address: 8-P, care of "Brick and Clay Record." 8-TF

FOR SALE—Two 90 h.p. gas engines at $225.00 each. These engines are practically new, equipped with magnetos. Must be moved immediately. Topper Bros., Columbus, Ohio. 11-3.

FOR SALE—All kinds of Clayworking Machinery, bargains in used engines, boilers, motors, brick and tile machines, dry pans, pug mills, cutting tables, anything you want. Two good fully equipped plants for sale. CLAY-WORKERS EXCHANGE, Farmers Bank Bldg., Springfield, Ill. 5-tf.

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

FOR SALE—At your own price:. one Iron Quaker soft-mud brick machine and all auxiliary equipment. It has made less than 500 M brick. Also Brewer brick and tile machine, 75 cast-iron dryer cars. All in good condition. Cedar Rapids Brick Co., Cedar Rapids, Ia. 11-2TFX

FOR SALE—One 125 h.p. boiler, one 100 h.p. engine, 15 pulleys, 50 ft. 4-inch shafting with hangers. J. P. Vogan, Franklin, Pa. 11-2-6

Brick and Clay Record Classified Ads Are Result Producers

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

RAILS

all sizes—small or large lots. New and relaying Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. Immediate shipment from stock.

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

PATENTS

Inventions Protected.
Trade Marks Registered.
Patents Investigated.
Established 1895.

HUBERT E. PECK.
635 F. St., Washington, D. C.

WANTED—

Back copies "Brick and Clay Record."
November 18, 1913—one copy.
September 1, 1914—two copies.
October 19, 1915—several copies.
November 2, 1915—several copies.

We will pay 25 cents each for copies of the above issues. "Brick and Clay Record," 445 Plymouth Court, Chicago, Ill.

RAILS

Small Orders Given Special Attention

40, 56, 60, 70, 75, 80, 85 & 90 lb.

RELAYING RAILS
FOR SIDINGS, SPURS, ETC.

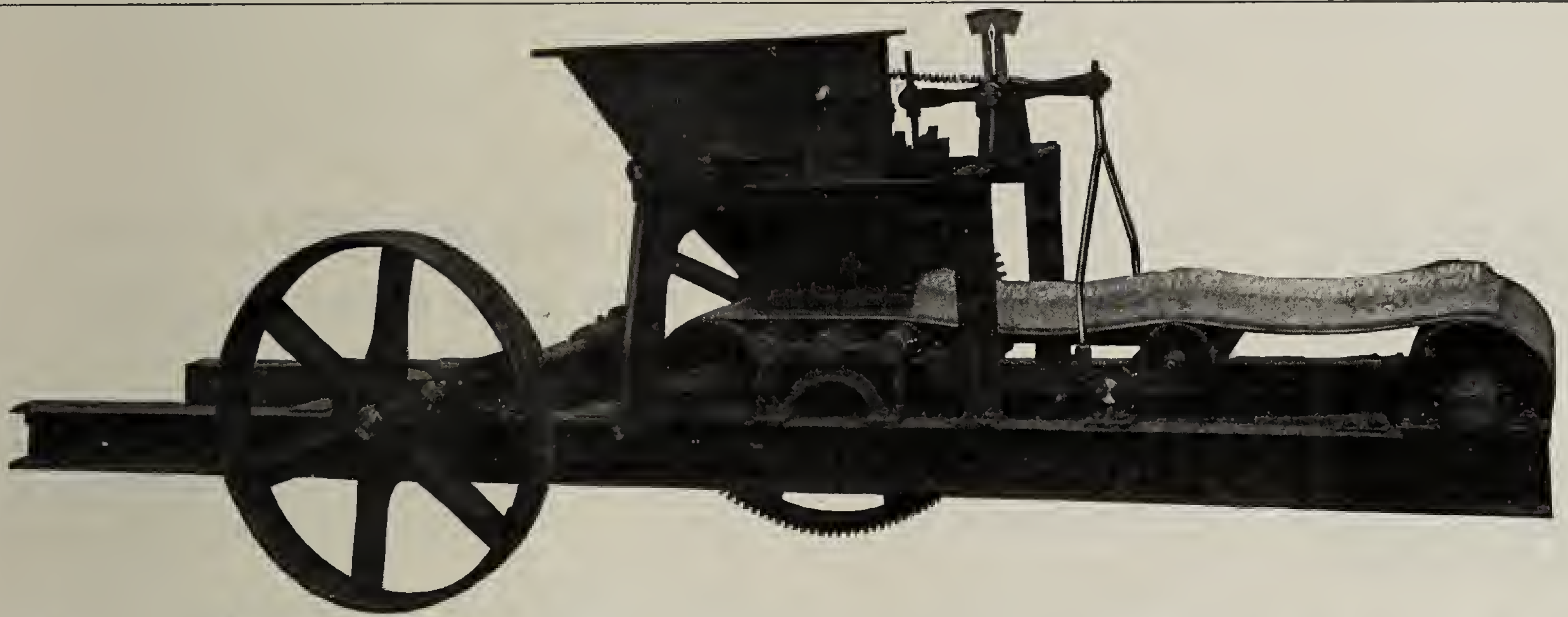
8, 12, 16, 20, 25, 30, 35, 40 & 45 lb.

NEW STEEL RAILS
FROGS AND SWITCHES

SECOND-HAND Rails, cut to any length desired, for BRACING, UNDERPINNING, LINTELS, concrete RE-ENFORCING, BUCKSTAVES. All kept in stock for quick shipment

RICHARDSON & CO., INC.
1103 Bessemer Bldg.,
PITTSBURGH, PA.

RAIL DEALERS



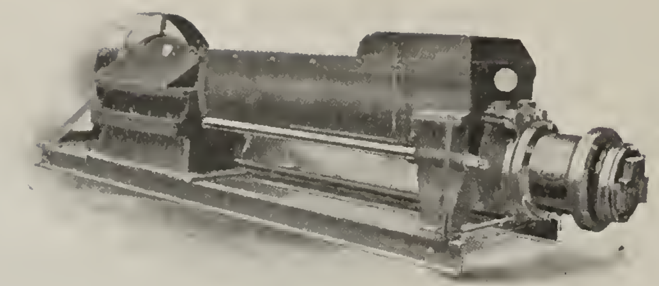
The Schaffer Poidometer—*What it will do*

It Will
- —unite any number of materials in correct proportion.
- —deliver them to pug mill at a predetermined number of pounds per minute.
- —deliver water at a predetermined number of pints per minute.
- —produce a clay column evenly tempered, of absolute uniformity.
- —do this—and it eliminates the pug mill man.
- —reduce cracking, because the dry house man knows the material.
- —reduce burning loss, because the burner can always produce the same color and hardness.
- —pay for itself in one season by reduction in labor alone.
- —produce a higher quality and greater quantity of first-class ware.

YOU CANNOT AFFORD TO BE WITHOUT IT—INVESTIGATE

The Schaffer Engineering & Equipment Company
Tiffin, Ohio

SAY "I SAW IT IN" BRICK AND CLAY RECORD



The Wise Man of FATE

The Fate
Special Premier Machine
Will Enable YOU to Make Perfect Hollow Ware and Accomplish this at a Living Profit

Failure to make merchantable hollow ware may be attributed to the machine as often as to the clay or to the man that manipulates the clay.

Makeshift machinery won't do it. Hollow ware machines must be HOLLOW ware machines, and this is WHY the Fate Special Premier Hollow Ware Machine is making a profitable product out of a clay that is declared to be difficult to handle.

"The Fate Special Premier"
Will Make Hollow Ware at a Living Profit, Because:

It has the proper mixing chamber with the specially designed knives to give just the right mixture to the clay—absolutely necessary to the manufacture of salable hollow ware.

It has the proper "force" to the clay to enable it to fill out all the mold and deliver to the off-bearing belt a perfectly made ware.

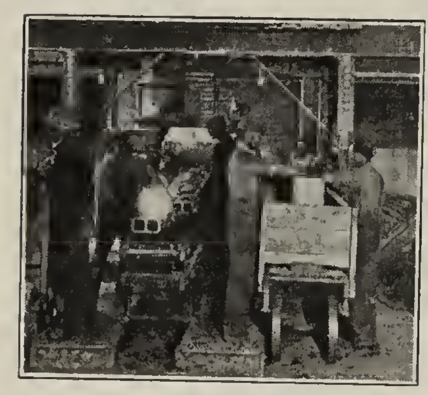
It has the properly designed dies.

It has stability.

It has durability.

It has the maximum of productiveness at the minimum of cost.

The Clay Product Co., Brazil, Ind.
Proves This Statement to be TRUE!



This concern—one of the largest and most successful clay product plants in the United States, is making hollow ware with a "Fate Special Premier Hollow Ware Machine."

Two of these big "Premiers" are used on making conduit ware—one of the most difficult of wares to manufacture, because of the exacting conditions.

Not only must this ware be symmetrical, both inside and out, but the ends of the ducts must be perpendicular to sides. Then, too, there must be no projections or defects which will weaken the conduits, or which will prove an obstacle in pulling cables through the ducts. All duct holes must be well centered and all duct walls must be of a specific thickness.

The multiple ducts must have dowell pinholes for perfect alignment so that each hole will fit perfectly and be interchangeable in all parts.

No other machine will give such a uniform ware as the "Fate Special Premier" and, at the same time permit a living profit, and the Clay Product Company has proven this to their own satisfaction.

You Can Do the Same

If the "Fate Special Premier" will make **conduit** ware successfully it certainly can make any hollow ware at a profit.

We have a special bulletin on hollow ware machinery—why not send for it and investigate a little?

The J. D. Fate Co., 240 Riggs Avenue, Plymouth, O. We are interested in the following items and wish you to show us how your Full-Measure Service will benefit us—this request not obligating us in any manner.

- ☐ Auger Brick Machinery.
- ☐ Hollow Ware Machinery.
- ☐ Conveyors.
- ☐ Crushers.
- ☐ Elevators.
- ☐ Clay Feeders.
- ☐ Disintegrators.
- ☐ Pug Mills.
- ☐ Clay Testing.
- ☐ Full Equipment.
- ☐ Industrial Locomotives.
- ☐ Drain Tile Machinery.

Name ....

Town.................................. State...........

We Make Everything For the Clayworker

"The House of Fate" manufactures everything a clayworker uses—and every machine or device is designed for its special purpose just as are "Fate Special Premier Hollow Ware Machines."

There are no makeshifts in Fate machinery—no patched up machines "to answer a purpose."

Let Fate's Experience Help You Our various departments are at your service in any of the problems that confront you.

Give us a frank statement of your needs or requirements and let us make you a proposal. You do not have to buy or agree to buy anything.

Use the Coupon At the left there is a coupon. Check off the items you are interested in and stick this coupon to your letter head, or to a slip of paper, and mail it today.

The J. D. Fate Co.

240 Riggs Avenue PLYMOUTH, OHIO

SAY I SAW IT IN BRICK AND CLAY RECORD

The Wise Man of FATE

"The Plymouth" Will Do YOUR Haulage Cheaper and Better than Man, Horse, Compressed Air, Steam, Electric or ANY OTHER Gasoline Locomotive.

This statement is not an idle one. It is made as a positive statement of FACT and broad as it may SEEM to you, we give you the assurance that it is backed up by the PROOF of "Plymouth" users and that we are going to convince you by showing you this proof.

"The Plymouth"

Will Do Your Haulage Cheaper and Better, Because—

It Uses Gasoline—the most economical of ALL Fuels.

It uses the "Plymouth" Friction Drive, which gives MORE power, per unit of energy, a greater FLEXIBILITY of operation, a LIMITLESS number of speeds—the same forward, the same backward, a quicker PICK-UP of loads, and a greater freedom from JERKS and STRAINS, than does ANY OTHER system of transmission.

It uses a HEAVIER frame, which gives it greater TRACTION power and enables it to PULL MORE per horse power, and to take greater and higher GRADES than any other locomotive of the SAME horse power.

Frank Fleigle, Morrisonville, Illinois

Says This Statement is TRUE!

This is Mr. Fleigle's 8-year-old son, who operates "The Plymouth."

Mr. Fleigle has had a "Plymouth" in actual use about 18 months, the locomotive replacing dump cars drawn by horses, and because of the short haul he has (300 feet) and the 10 per cent grade he has to negotiate, we select his case as a fair one for evidence.

Certainly, if "The Plymouth" can be of a profit to a small plant like that operated by Mr. Fleigle, it ought to be profitable to a larger plant. Read what he says:

"We find that the 'Plymouth' is costing us for fuel about HALF to feed the two horses we formerly had.

"At one time we used a drum hoist with electric motor, but this required a man with a horse to set the empty car in the pit, and we have proven that the 'Plymouth' not only is cheaper than the horse and dump cars, but also cheaper than the hoist.

"My 8-year-old son runs the 'Plymouth,' easily starting and stopping without trouble, even on a 10 per cent grade. Our repair bills for the past 18 months have been less than $1. Our candid opinion of the 'Plymouth' as a load-pulling locomotive is that it cannot be beaten."

We Have a Big Book of "Plymouth Facts"

You ought to learn all about the "Plymouth" because it may open your way to a real profit in your business.

We have a book which tells all about the "Plymouth," and also by illustration and letters from users shows just what it is doing for other clayworkers.

Get ALL the Truth

Send for this book—a copy to you for the asking, and then act as judge. It is full of FACTS—and it is FREE.

Send Coupon

At the right there is a coupon—it is placed there for YOUR convenience. Sign it, place it in a letter and mail it TODAY, or, if you wish, write us a letter and state just what your haulage conditions are and we will send not only the FREE book, but also make you a proposal.

The J. D. Fate Company
240 Riggs Ave.
Plymouth, Ohio

Send us "The Plymouth FREE Book of Facts." This does not obligate us in any way.

Firm Name (Firms) ....
(Signed by) ....
(City) ....
(Street) ....
(State) ....

The J. D. Fate Co., 240 Riggs Ave. Plymouth, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD

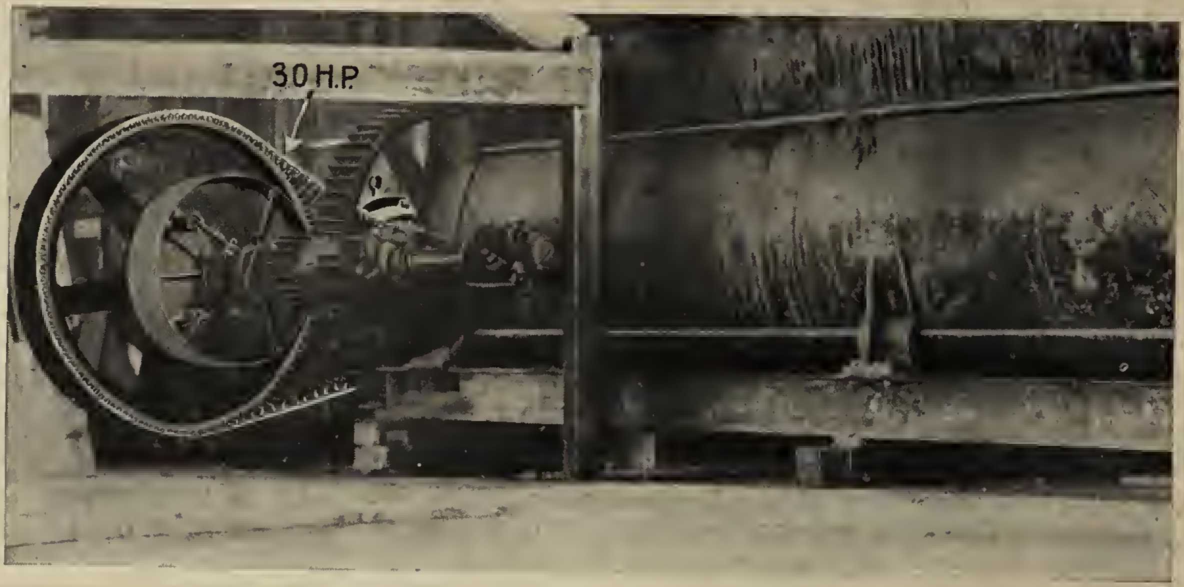
Sharp Shocks Cannot Hurt Your Motors

IF THE POWER IS TRANSMITTED BY

Link-Belt Silent Chains

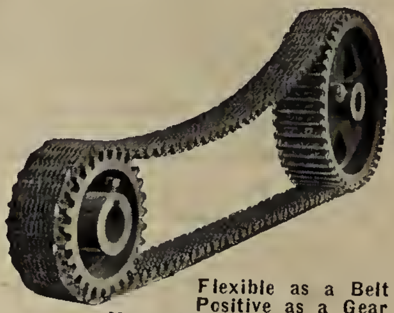
It is no idle statement when we say that this is the **ideal drive** for the clay-working plant, but we can offer an abundance of evidence to prove it. There are plants where it was impossible to run dry pans, pug mills, auger machines and other heavy equipment to capacity until Link-Belt Silent Chain Drives were installed.

Here's a 30 H. P. Motor set close up against a wall, → driving a Stiff-Mud Machine efficiently, without loss of valuable space such as a long belt would require.



AND NOTE THIS WELL: The Link-Belt Silent Chain Drive gives better service in a clay plant than a leather or canvas belt because the Link-Belt Chain is encased in a metal covering which keeps it free from dust, and allows it to run in oil so as to keep it perfectly lubricated. That's one reason why many brick manufacturers have used Link-Belt Silent Chains for six, eight years and even longer with such remarkable satisfaction.

We will gladly send you a most valuable booklet: "The Ideal Drive for Clay-working Machinery." It's free—and you ought to have a copy.



Flexible as a Belt
Positive as a Gear
More efficient than either

LINK-BELT COMPANY

PHILADELPHIA **CHICAGO** **INDIANAPOLIS**

New York - - - - 299 Broadway
Boston - - - - 49 Federal Street
Pittsburgh - - - 1501 Park Bldg.
St. Louis - Central Nat'l Bank Bldg.
Buffalo - - - 698 Ellicott Square
Wilkes-Barre - 2nd Nat'l Bank Bldg.
Portland, Ore. - 14th and Lovejoy Sts.

Birmingham, General Machinery Co.
Cleveland - 1304 Rockefeller Building
Detroit - - - 732 Dime Bank Bldg.
Seattle - - - 580 1st Ave., South
Denver - Lindrooth, Shubart & Co.
San Francisco, Meese & Gottfried Co.
New Orleans - Whitney Supply Co.

Los Angeles, 204 N. Los Angeles St.
Minneapolis - Link-Belt Supply Co.
Montreal, Can., John Millen & Son, Ltd.
Toronto, Can., Canadian Link-Belt Co., Ltd.
Knoxville, D. T. Blakey, Empire Bldg.

BRICK and CLAY RECORD

THE BRICKMAN'S MERRY CHRISTMAS

There will be gladness and rejoicing in the hearts of clay-products manufacturers everywhere when their eyes feast on the

STEVENSON
NEW NINE-FOOT TWIN-FRAME WET PAN

The Wonder of All Who See It

May your Christmas be merrier—the New Year bring you greater happiness than any that have gone before — that's our wish

THE STEVENSON COMPANY WELLSVILLE, OHIO

Vol. XLVII, No. 12 Chicago December 21, 1915

WELLER-MADE

Don't Stay in a Rut

That is what many clay workers are doing, simply because at the end of the year the business shows a small profit.

Be a live wire—do not be satisfied with this small profit. Find out if you are not doing many things at an expensive cost just because you have always done them that way.

Abraham Lincoln said: "A wise man changes his mind, a fool never does."

Good business management is in the wise class. Why be ashamed to ask questions and find out the best way to handle your problems?

We find people every day who want to handle clay, shale or coal in a more economical manner, or who want to increase their capacity or speed of operation.

Most times we can help them; sometimes the first cost of an installation is the only consideration, and they will drop back into the same old rut.

The up-to-date conservative operator avoids these ruts, and increases his capacity, reduces his costs, and adds to his bank roll.

ARE YOU ADDING TO YOURS? If not, whose fault—yours or your competitor's?

Do something. Don't wait until another season shows that you have made the same mistake "twice in the same place."

The brick business will be good long after we are all gone, so you are not considering temporary installation.

Figure over how much you have lost in leaks this year. Then consider plans and methods of overcoming these leaks next year.

Don't spend money to be a "good fellow."
Spend it to make more money for yourself.

Savings banks pay 3% interest on your money, and a 6% investment is considered very good. An actual increase of only 1,000 brick per day, with no increase in cost, means conservatively $1,000.00 per year coming in, which is 10% on a $10,000.00 investment.

Figure it out on a business basis. If it does not make a paying investment, forget it and drop back in the rut.

Let Us Work With You and For You

A Postal or a Short Letter May Bring a Dividend

Weller Manufacturing Company

Chicago

SAY I SAW IT IN BRICK AND CLAY RECORD

Trautwein
DRYERS

Whatever Is Best For You—

That's what you get when you intrust your problems to us.

We know we can help you, if you'll only do as scores of other clay-products manufacturers have done—JUST WRITE and tell us of any conditions in your plant that may be bothering you—or of any plans you have in mind.

We are manufacturers of Dryers and Dryer Equipment—as Engineers we have designed and built complete some of the finest and best money-making clay plants in America—

Yet we have no set plans or ideas to force upon you—we will study **your** problems and tell you what is best for **you.**

Write us—you don't incur any obligation.

Trautwein Dryer & Engineering Co.
Manufacturers of Drying Equipment
ENGINEERS—
417 South Dearborn St. CHICAGO, U. S. A.

Do Any Of Your Kilns Look Like This?

There's One Safe Way to prevent this condition—one sure way to save that big item of "kiln repairs" that you have been charging up each year—adopt

The Smith Steel Encased Kiln

We have facts and figures to prove what savings we have made for others—why not let us send them to you?

Claude Smith Company
Kiln Builders
Plymouth Building, Chicago, U. S. A.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Service to Clayworkers

Alliance Brick Co..........P- 8
Alliance Clay Pro. Co....P- 5
Alsey Brick & Tile Co....P- 3
Alton Brick Co..........P- 4
American Blower Co...... 968
American Clay & Cement Corp..........P- 8
American Enameled Brick & Tile Co..........P- 8
American Process Co...... 950
Ambursen Co.......... 963
Atlas Car & Mfg. Co...... 943

Baird Mach. & Mfg. Co.. 942
Baldwin Loco. Wks.......... 939
Barr Clay Co..........P- 4
Beighlee Electric Co.......... 961
Bessemer Limestone Co..P- 5
Big Four Clay Co..........P- 6
Bradford Pressed Bk. Co..P- 6
Broderick & Bascom.......... 941
Brown Instrument Co...... 937
Bruce-Macbeth Eng. Co.. 934
Buckeye Rolling Mill Co.. 935

Canton Grate Co.......... 943
Carlyle Paving Bk. Co....P- 6
Ceramic Sup. & Cons...... 941
Chambers Bros. Co.......... 891
Chase Fdry. & Mfg. Co.. 950
Chicago Brick M. Co...... 963
Chicago Retort & Fire Brick Co..........P- 4
Cincinnati Frog & Switch 934
Classified Ads.......... 966
Cleveland Alloys Co.......... 935
Crescent Belt Fastener Co.......... 933
Cyclone Grate Bar Co...... 946

Davenport Loco. Wks...... 934
Danville Brick Co..........P- 5
Davis Fire Brick Co..........P- 3
Deckman-Duty Brick Co..P- 4
Dewey Bros.......... 932
Didier-March Co.......... 894
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Put Your Equipment Problems Up to Men Who Know

It is natural for each of us to think we know more about our own business and our needs than any outsider possibly could, and to a considerable extent we are right.

However, "no man alone is sufficient unto himself"—the world would have stood still if such an idea had ever taken deep root in the minds of people generally. We learn by contact and comparison.

And in this very thought we have the reason for the success of good advertising.

New equipment is brought out—or a new application made of a machine or a principle that has worked well in other ways—the one universal way to tell about it is to Advertise.

The men and companies back of the advertising in these columns are men who know—otherwise they could not afford to spend money to tell you how they can help you.

Put your problems up to them.

Standards of Practice for Business Papers

1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves. and then to strive in every legitimate way to promote that function.

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¶ I can make three first-class drive belts out of that conveyor belt, but as a conveyor she's done. She won't handle tonnage."

"Why can't I get better conveyor service?"

The above is a brickman's query.

And here is the answer for every executive who has a belt conveyor in his plant:

¶ This man, like most others, has been thinking of conveyors in terms of ***belting merely.*** Conveyor belts don't often wear out. They crack through or narrow down on the edges until they won't handle the tonnage, and have to be discarded long before they ought to be.

¶ Hundreds of conveyor belts are doomed before ever they go onto the pulleys. The rollers on which they run, when rollers are used, are ***belt-killers.*** In nine cases out of ten the belts take the blame for premature wear when the rollers themselves are responsible.

Think of conveyors in terms of belts ***and rollers.*** Put a good belt on a belt-saving roller and the added service and increased tonnage you will get from the ***first*** belt will often pay for the change, whether you now use a ***"drag" or old-style rollers.***

Send a postal for Book 2 and get a new angle on the conveyor question and full details about the first roller ***designed to give the belt a chance.***

If you have not asked for your copy of that new 64-page book on belts in general, a postal will bring it.

MAIN BELTING COMPANY

LEVIATHAN-ANACONDA BELTING

Philadelphia Birmingham Pittsburgh Chicago Seattle New York

LEVIATHAN AND ANACONDA BELTING
ELEVATING
TRANSMITTING
CONVEYING

SAY I SAW IT IN BRICK AND CLAY RECORD

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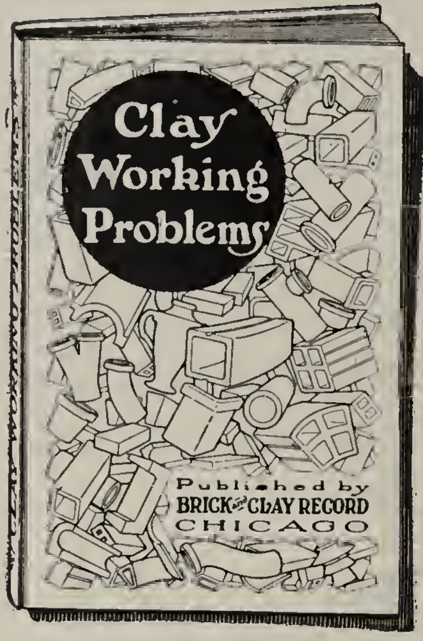

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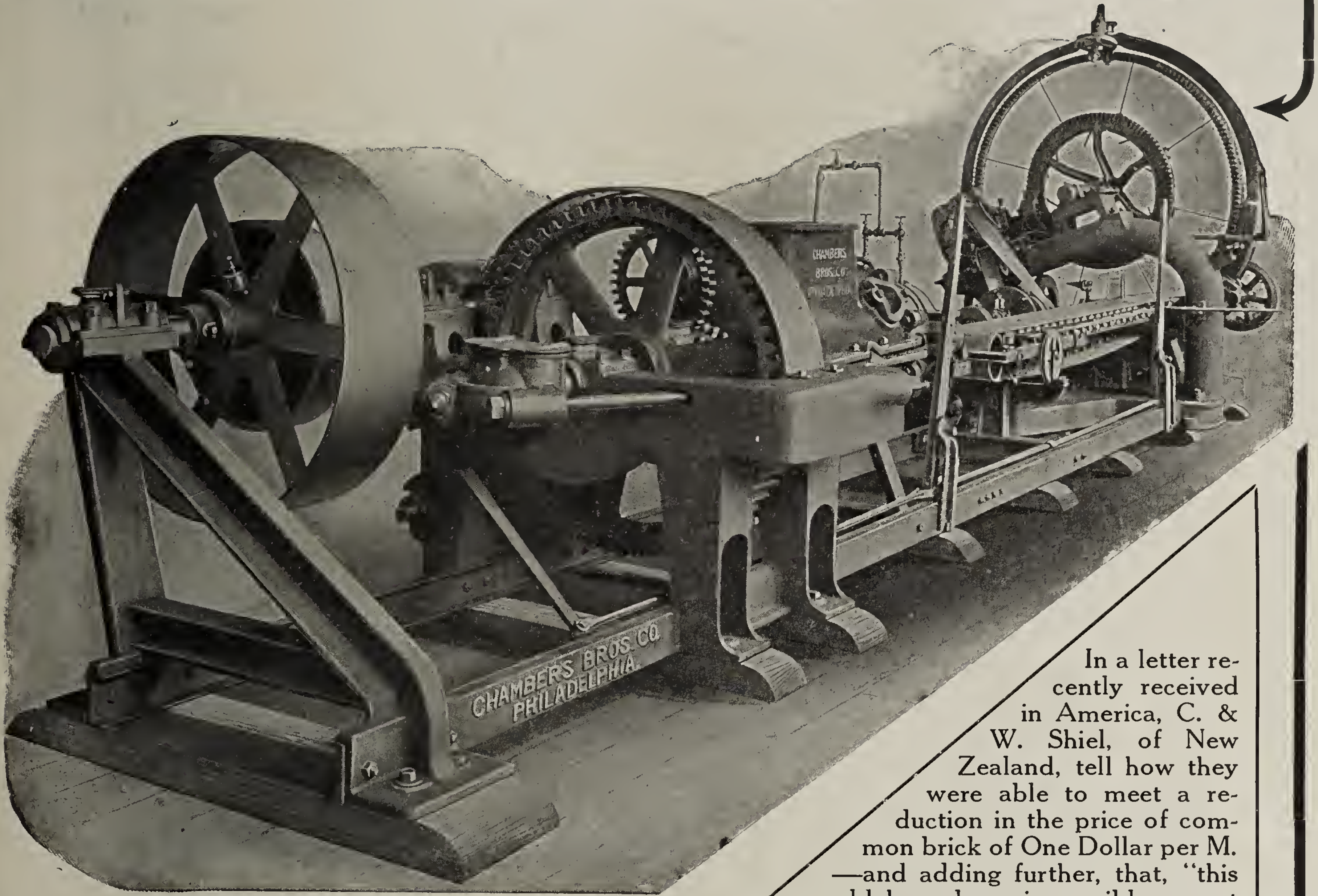


In a letter recently received in America, C. & W. Shiel, of New Zealand, tell how they were able to meet a reduction in the price of common brick of One Dollar per M.—and adding further, that, "this would have been impossible except for the efficient equipment we had installed, including Chambers Brothers Brick Machinery."

READ THIS!

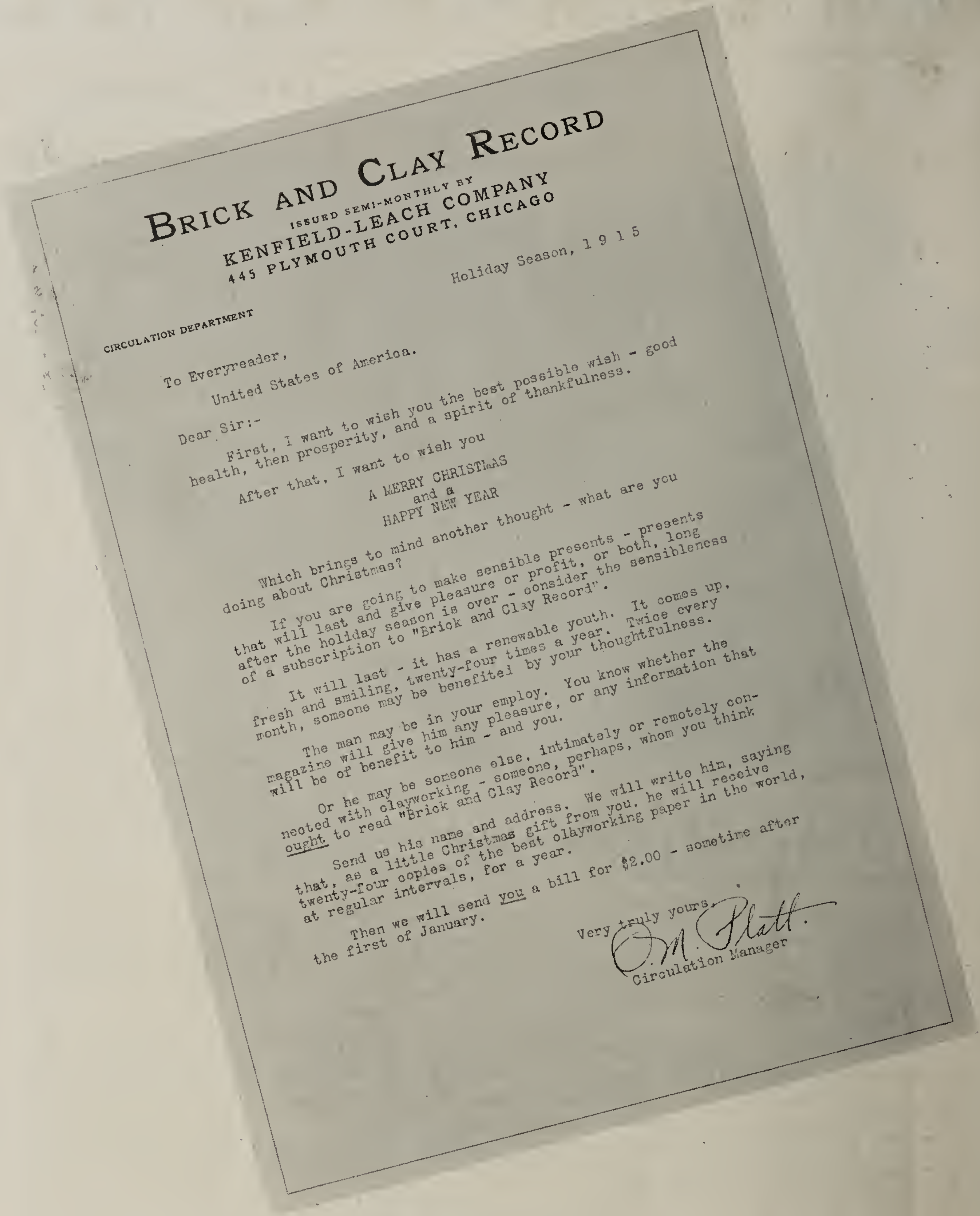
C. & W. Shiel of New Zealand bought their first Chambers machine, our No. 10 Auger Machine with End Cutter, several years ago—then last year one of the firm journeyed to Philadelphia and placed an order for additional Chambers equipment—just recently another order has been received from them for another No. 10 Auger Machine.

This is, of course, gratifying evidence of the worth of Chambers Machines—but it's not so exceptional with us—we study the needs of those who place their confidence in us—we sell them such equipment as we are sure will give them MAXIMUM CAPACITY—that's why we keep our trade.

ISN'T IT WORTH SOMETHING TO YOU TO HAVE SUCH CONFIDENCE IN THOSE WHO SERVE YOU?

We'll talk matters over with you anywhere—any time.

CHAMBERS BROTHERS CO., Philadelphia, Pa.



BRICK AND CLAY RECORD
ISSUED SEMI-MONTHLY BY
KENFIELD-LEACH COMPANY
445 PLYMOUTH COURT, CHICAGO

CIRCULATION DEPARTMENT

Holiday Season, 1 9 1 5

To Everyreader,
United States of America.

Dear Sir:-

First, I want to wish you the best possible wish - good health, then prosperity, and a spirit of thankfulness.

After that, I want to wish you

A MERRY CHRISTMAS
and a
HAPPY NEW YEAR

Which brings to mind another thought - what are you doing about Christmas?

If you are going to make sensible presents - presents that will last and give pleasure or profit, or both, long after the holiday season is over - consider the sensibleness of a subscription to "Brick and Clay Record".

It will last - it has a renewable youth. It comes up, fresh and smiling, twenty-four times a year. Twice every month, someone may be benefited by your thoughtfulness.

The man may be in your employ. You know whether the magazine will give him any pleasure, or any information that will be of benefit to him - and you.

Or he may be someone else, intimately or remotely connected with clayworking - someone, perhaps, whom you think ought to read "Brick and Clay Record".

Send us his name and address. We will write him, saying that, as a little Christmas gift from you, he will receive twenty-four copies of the best clayworking paper in the world, at regular intervals, for a year.

Then we will send you a bill for $2.00 - sometime after the first of January.

Very truly yours,
O. M. Platt.
Circulation Manager

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Marion

GASOLINE SHOVELS

GOING to work is a whole lot more profitable to you than *getting ready* to go to work! It's a safe bet that when you want clay you *want it right then,* and when you've finished for the day you want to stop and either let the crew go home or turn to something else.

That's where the beauty of the new Marion Gasoline Shovel comes in. It's a mighty digger, and, size for size, will do all the things a steam shovel will; but a single turn or two of the starting crank sets it going, and stopping it is merely a matter of throwing out the spark. This new Marion is

READY when *YOU* are; Bigger than the Toughest Digging; Runs at Low Cost; No Licensed Engineer

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Write us today for full information about Marion Gasoline Shovels, mentioning whatever facts about your work will help us make our reply *more really useful* to you. Special Catalog 951 will be mailed upon request with full data covering your particular case. No obligation to you.

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ESTABLISHED 1884
MANUFACTURERS OF EXCAVATING MACHINERY OF EVERY DESCRIPTION
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SAY I SAW IT IN BRICK AND CLAY RECORD

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—as a commercial success, is the one that takes the raw product and turns it into a finished state so it can be sold in the open market at a legitimate profit.

—many of us have dreamed of machines, driers, kilns and methods—fortunes have been lost in exploiting and testing ideas that were mere ideals—they would not stand the final test of practicability.

—but not so with the

Didier-March Continuous Tunnel Kiln

Which is simply a practical application of common sense in burning clay ware—

The Heat Is Constant In Each Zone

There is no intermittent heat period—hence not even one degree of heat is wasted. The ware moves on cars through the water-smoking, heating and cooling zones. At our own plant we are turning out 300 tons of finished brick every twenty-four hours—as fine a quality of brick as can be found anywhere—**burning this brick at 2500 degrees F. in 72 hours—and we have been doing this for five years.**

You won't incur any obligation if you ask us for more details—we'll gladly enlighten you further.

Didier-March Company

Perth Amboy, N. J.

Contractors **Manufacturers of Refractories** **Engineers**

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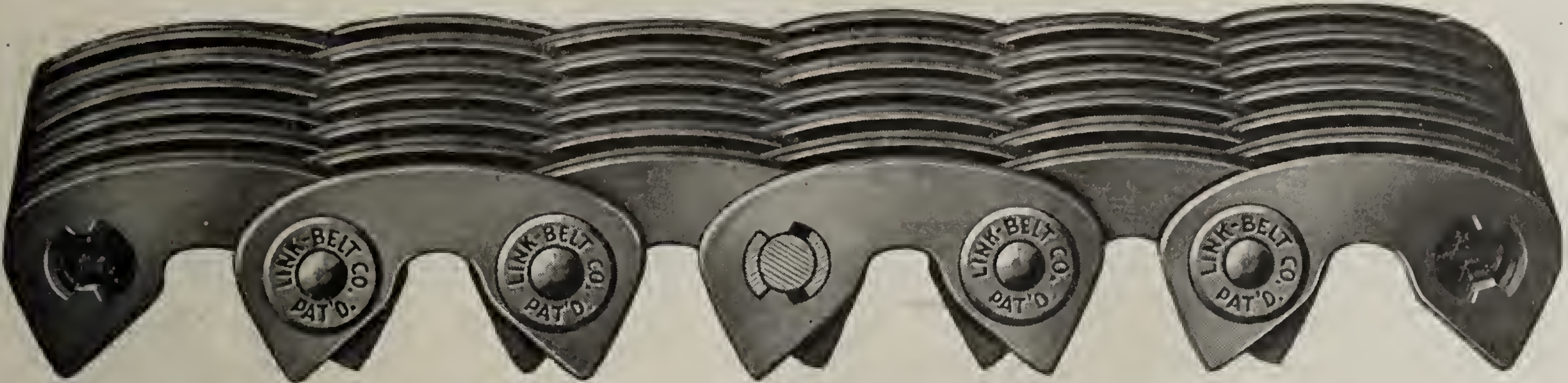

LINK-BELT SILENT CHAIN DRIVES

work equally well whether your machines are arranged for individually motor-driven units or in the group plan. Individual conditions in your plant must determine which is the better of these two methods. But—you don't have to change the position of your machines in order to equip them with Link-Belt Silent Chain Drives.

Here's a 35 H. P. Dry Pan on which the original driving gear was replaced by the Link-Belt Silent Chain Drive three months after the machine was installed, and on exactly the same centers. Note the drive is vertical. Six dry pans like this one are silent-chain-driven in this plant.

Our experience in solving power transmission problems in clay plants covers many years of careful experiment, thought and actual practice. We invite you to discuss your transmission problems with us—we make no charge for advice, layouts or estimates. Our Engineering Department is at your service.

Send for a valuable free booklet: "The Ideal Drive for Clay Working Machinery." No obligation.

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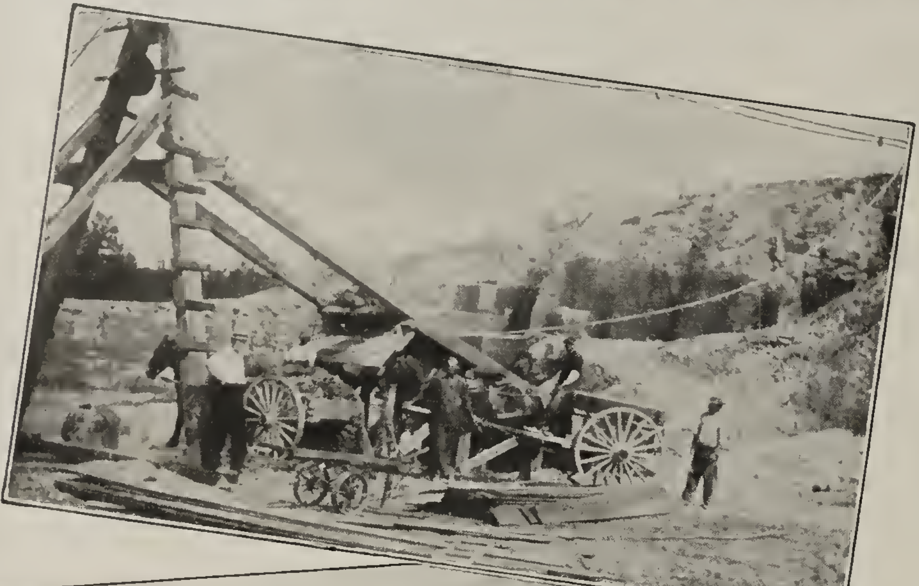

Many Clay Plants are doing this very thing by the use of

THE SCHOFIELD-BURKETT EXCAVATOR

The photos shown here were taken at the brick plant of the Atlas Building Material Co., Hudson, N. Y., where this ingenious method of digging the clay out of the bank has **cut in half** the cost of the former method of digging by hand.

This Excavator actually digs the clay out of the bank automatically—carries it by a cable method to a central point where it is automatically dumped in carts, and taken to the mill.

TWO MEN DO THIS WORK IN LESS TIME THAN WAS FORMERLY REQUIRED BY TWELVE MEN ←

We know there are hundreds of brickmakers—even those having the very latest improved brick machinery—who are still digging their clay by the old, wasteful hand method. NOW IS THE TIME to get out of the rut—we sell you the Schofield-Burkett Excavator under an absolute guarantee—our engineers will lay out a plan for you—we can satisfy you that **we can save** you in **labor, stock, time** and **money.**

Ask us for Catalog No. 10 and the names of those we are already serving.

Schofield-Burkett Construction Company
Office and Works: MACON, GEORGIA

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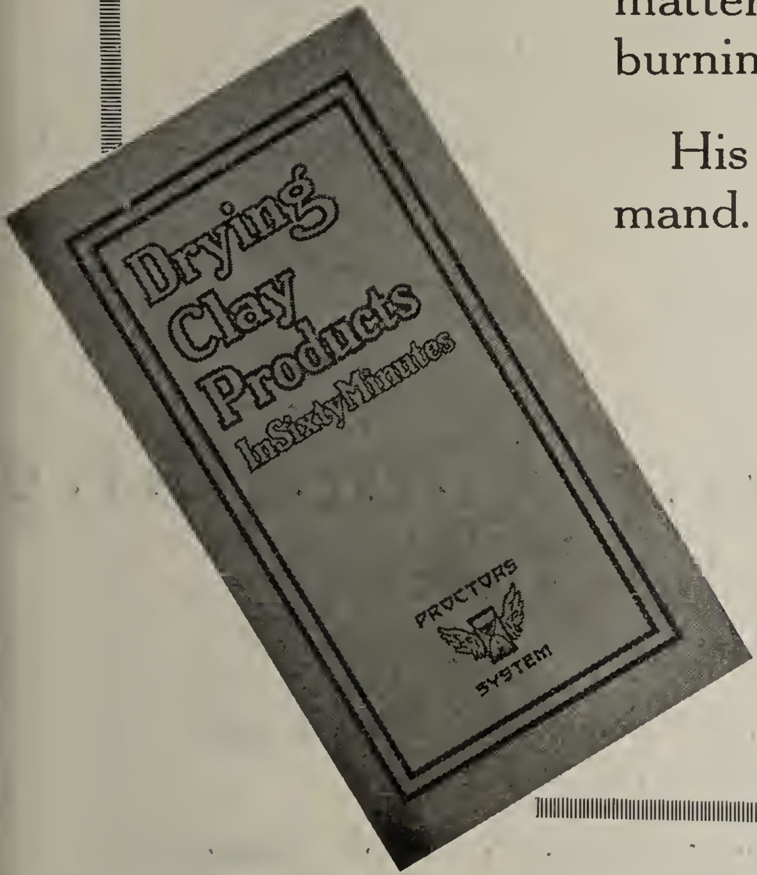

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The Editor's Corner

Comment, Criticism and Advice on Live Issues Affecting Clay Products and on Their Uses, Sale and Manufacture

MORE THAN FOUR MONTHS ago this magazine called attention to the fact that if an engineer or architect were to seek authentic information as to the exact sustaining power of a brick pier, he would not know where he could obtain it.

Those of you who preserve back issues of "Brick and Clay Record" will do well to go back to the August 17 issue and read what was written on the subject.

Very recently a paper was presented at the meeting of the International Engineering Congress in San Francisco, Calif., by A. V. Bleininger, B. Sc. of the Bureau of Standards, and this paper is now being published in serial form by this magazine.

So something definite and authoritative has been written about brick and brickwork.

It is worthy of comment, however, that practically nothing along this line was even attempted until Prof. Bleininger wrote the paper in question.

And thru all of the years that brick and brickwork have been written into building codes, ordinances and regulations thruout the country, the man who wrote the code or who was to use the material has been expected to find out for himself all of the good points which brick and brickwork possessed, with but little assistance from the men who made or sold the material.

If this seems a strong statement, we suggest your careful reading of the article by George W. Rathjens which appears on pages 917, 918 and 919 in this issue.

As a man is known by his works, so must we know an industry.

If the manufacturers of common building brick had tried, in the years gone by, to do anything beyond standardize the size of their material and in other ways arrange to prevent one from taking an unfair advantage of the other, the men who are writing the building codes of our large cities would have been given, long since, a better understanding of brick as a building material. The reason that there is so much that is contradictory in these various codes is that manufacturers of common building brick know so little about their own material that they are poor witnesses in its behalf when called before a court of inquiry.

Eighty Per Cent Capacity

A curious situation developed in connection with one of the papers which was read before the American Face Brick Association's convention at Old Point Comfort. It was that, in gathering statistics relating to the production costs of various kinds of face-brick, it developed that the average face-brick plant could only expect to dispose of eighty per cent of its capacity.

To make this a little more plain; a number of representative plants gave the information and while some of them had only disposed of sixty per cent of their capacity during the last five years, others had disposed of practically one hundred per cent. The average, however, was eighty per cent.

Considering the fact that nearly every efficiency expert points to "getting capacity" as the first requisite of successful and profitable operation, it would look as tho the face-brick industry had not been particularly successful nor profitable during the past five years.

One cause, if not the most important, for this, is the fact that while new plants have been started and old plants increased, no continuously active work has been done in a broad way, to extend the use of brick and brickwork.

Almost six years ago—it was at the Rochester convention of the National Brick Manufacturers' Association, held in February, 1909—a comprehensive movement for national brick publicity was started.

It came at a time when the production of common-brick had reached the lowest level in the history of the industry as written up to that time. Face-brick, too, had sustained a loss in production and had reached a figure that was lower than that of the two preceding years. The "Clay Products Association of America"—afterwards re-named the "Building Brick Association" was at the height of its activity two years later. Its really effective work covered 1909, 1910 and 1911.

It may be a coincidence—judge for yourself—the output of common-brick, which was 7,811,046,000 in 1908, averaged 9,162,888,000 for the three following years—1909, 1910 and 1911.

It may be mere chance—judge for yourself—the output of face-brick, which was 6,935,600 in 1908, averaged 8,983,717 for the three following years—1909, 1910 and 1911.

The "Building Brick Association" was organized for the purpose of extending the use and thereby increasing the market for building brick, both common and face. Despite the fact that it seems to have, as the slang phrase has it, "delivered the goods," it was allowed to hit the toboggan in 1912 and today is considerable of a memory.

This little history is repeated, in passing, because on numerous occasions it has been said that the National Brick Manufacturers' Association is a "getting together" organization and that the idea of its doing any particularly serious work is out of the question.

Yet, being an organization that is largely composed of common-brick manufacturers, it would seem as tho it could be turned into a very potent power and that it might do something worth while in the way of increasing the use of common-brick.

Comparing the production figures, given in a preceding paragraph, it will be seen that a great many more common-brick are manufactured in this country than face-brick; and altho there be a considerable difference in the selling price per M., this does not, by any manner or means, offset the difference between the two kinds of brick. The value of common-brick produced in this country is nearly six times as great as the value of the face-brick output.

The face-brick people have an organization which is doing something, every day in the year, to extend the use of face-brick; and for every dollar's worth of face-brick that they sell in this manner, they carry a burden of five dollars' worth of common-brick, which, according to some of the "old-timers" has an organization solely devoted to the very laudable object of "getting together."

Trade Names on Clay Products About three years ago, "Brick and Clay Record" began the publication of a list of trade names adopted by manufacturers of clay products, under which their wares were advertised and sold. No charge was made for this publicity, altho it served a double purpose.

In the first place, it prevented one manufacturer from investing his money (and that is the way that advertising should be considered) in popularizing a name that was being used by some other manufacturer making similar material.

And it afforded an unmistakable and good legal evidence of ownership in the case of a dispute that might later arise as to what individual or concern was entitled to the exclusive trade right in any name.

The patent office at Washington refuses registration of all names that it construes as being descriptive or that are geographical, unless the applicant can prove exclusive and continuous use of the name for a certain definite period of time.

So "Brick and Clay Record's" list of trade names may yet be used—and probably will be used—as a basis for a claim of registry that could not otherwise be obtained.

It might be well for you to turn to the list of trade names published on another page of this magazine, and see whether or not any and all of the trade names that you are using are included in it.

So far as we know, it is the only official list published, and as comparatively few of the names that are in use have patent office registration, it is much more complete than the one that is a part of the government record.

"FULLY COVERED

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What Remained of a Row of Homes in Melle, France, After the Passage of the Kaiser's Army

WAR pictures, showing the devastation of European cities, are as common as the "comics" in the colored Sunday supplements. For that reason, the illustrations that accompany this article may be familiar to the reader. The purpose of their appearance in this magazine will be

---

NOT TO PUT too fine nor to cynical a point on it, the preparedness for our defenseless, but defendable country that will be wrangled into legislative provision by the patriotic Democrats and equally patriotic Republicans in the Congress now multiloquent—that is to say, in session—will split 'even Stephen' between preparedness against a possible foe, or a bevy of them, and preparedness for the presidential campaign in 1916."

The quotation is from "Politics and Preparedness," by Samuel G. Blythe, in a recent issue of the "Saturday Evening Post."

From now on, and up to the closing day of the present Congress, proposed appropriations, proposed naval programs, proposed compulsory military training, proposed coast defense and proposed extensions, alterations, improvements and reorganizations in our national powers of offense and defense, will be "first page stuff" for all of the big newspapers.

Stirred by what happened to Belgium and northern France, to Poland, Serbia and Heaven only knows how many other hitherto prosperous countries, the heart of the American citizen has taken on a quickened beat, and his more or less red blood has brought a blush to his erstwhile uncolored cheek.

He puts down his glass and discards his napkin, standing at what he fondly imagines is "attention" when the restaurant band plays the "Star Spangled Banner"—the while he tries to remember the words of the first verse.

And while his representatives in Congress dicuss the calamity that would befall this land of the free (in a manner of speaking) and home of the brave (largely, but not altogether of the Tammany tribe) he will, with a splendid fortitude, prepare to stand his share of the financial burden that will follow the adoption of a comprehensive program of defense.

It took a world-war to awaken the martial spirit of America. It takes something essentially big to overcome the inertia of the body politic—used to being done for and done by the men it elects to pass its laws. It takes an earthquake—real or artificial.

The productive power of each able-bodied man in this country is estimated at something between $600 and $700 a year. This takes into consideration the men who won't or don't work, the men who make from 75c to $1 a day—and Henry Ford. There are many more of the first than of the latter—hence the low average. Statistics prove that there are something like 38,000,000 men more or less "gainfully" employed. The total value of their labor is in the neighborhood of Twenty Billions of Dollars. Divide one into the other and you will arrive at that $600 to $700 figure.

The annual fire-loss of this country is estimated at $250,000,000. That is the amount of insurance that is paid—or very near it. When it is considered that all fire-losses are not fully covered by insurance, it is reasonable to increase the figure somewhat, and experts tell us that $300,000,000 is much closer to the real figures than the one first given. It is a tidy figure—one that is more easily expressed than understood.

Three Hundred Millions of Dollars represents the earning power, then, of about 43,000 average men, working for an entire year—"gainfully employed."

One Hundred Millions of Dollars is paid, each year, *as commissions to insurance agents,* upon fire-insurance policies that amount to something like $481,000,000.

And Congress will talk, and "refer," and "pair" and vote upon a program of preparedness against some foe that *may* sail across the sea, while the people of America fondly nurse an invasion that occurs every year—and which has occurred for many years past—which destroys $300,000,000 worth of the common wealth of the nation, and at the same time, subjects them to the necessity of expending more than half as much more to maintain in-

by INSURANCE”

disclosed by a careful reading of this and succeeding pages. In the suggestions made, a great gain may come to us thru the lesson taught by the calamity that has fallen upon the cities that have suffered the havoc wrought by invading armies. It is an ill wind that blows no good.

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Here (in Melle, France) the More Pretentious Dwellings Bore the Brunt of the Horrors of War

surance on property that does not burn—and many times more for fire-department protection.

Like many other national vices, the public attitude toward fire is the expression of the individual opinion of the average man, multiplied and re-multiplied by the total population—whatever that is.

For instance—we read a list of fires that have occurred in our city, or town, or village during the past day, or week, or month; we note the amount of property loss, and, married to it, as it were, the magical words “Fully Covered by Insurance.”

So easily is the average man misled, that he takes that notation as Gospel. He may even go so far as to breath an envious sigh—he would, in many cases, like to exchange a doubtful earning value in some of his property holdings to a “fully covered by insurance” fire-loss.

The fact of the matter is that mighty few fire-losses are even half covered by the amount of insurance that is collected upon them. There is a stoppage of earning value that is immediate; a loss of customers due to the inability to fill present orders and accept new ones; a loss of cohesion among employes, many of whom are compelled to seek other fields of labor; a loss that comes from the acceptance of an “actual cash value” upon machinery and equipment that was earning a good return upon the original amount invested in it before the fire, despite a paper depreciation.

Yet the mind of the average man does not dwell upon these indisputable facts. It absorbs the “fully covered by insurance” doctrine, and accepts the questionable protection of fire-insurance instead of the logical protection of fire-prevention.

The police power of the municipality and of the State, as expressed in fire-limits and in building codes, extends to the individual only in so far as it prohibits his subjecting his neighbor to an unnecessary fire-hazard. The punitive power of the insurance companies extends to every individual in the community, compelling each to bear his share of an estimated loss—a loss that might occur thru a general conflagration in that particular town or city.

Here the insurance companies exert a tremendous pressure upon the public, for by a comparison of the rates in one city, as against the other, the individual may, if he will, learn something of his chances of escaping a personal fire-loss. He may, if he will, move himself, his goods and his family to some city where the rates are lower—or, in other words, where his risk of burning up is less.

At the same time, however, he will continue to pay for the fire-losses of cities where fire-prevention is an almost unknown quantity. And this payment is not confined to the amount of premium he pays on the fire-insurance policy he has bought, and with which he hopes to “protect” his home, or his store or factory. It enters into the cost of everything he wears, everything he eats, everything he uses in his daily endeavor to make a living. These commodities have, in the course of their translation from a crude material into the finished product which he consumes, been housed in insured buildings, travelled in insured cars, been hauled by insured horses and wagons or motor trucks which, in turn, are stabled, or housed, in buildings that carry insurance.

And to the cost of manufacture, of transportation, hauling and whatnot, are added—perhaps as “overhead”—the invisible tax of “protection” that does not protect against the thing that it names.

The San Francisco and Baltimore fires—the burning of Salem—the “wiping out” of so many cities, or parts of cities, that the memory of one is merged in the recollection of all, each subjected the country to a momentary shock. It may be, and possibly is true, that the good done by these shocks, in awakening the public mind to the wisdom of better building as a means of fire-prevention, has offset the economic loss that followed the destruction of so much property. *Yet Hopewell built to burn* *and achieved its end almost as the last carpenter packed away his tools.*

And you are paying a tax, today, because of San Francisco, and Baltimore, and Salem—paying it every time you send a child to the corner grocery store or mail an order to the steel mills.

We have said that One Hundred Millions of Dollars is paid out, every year, in commissions earned by fire-insurance agents who solicit your accounts. That is more than is earned by the entire building brick and hollow tile industry of America. More, certainly, than this great industry pays its salesmen and solicitors for either making or taking orders. Is it any wonder that this immense amount of money has, even without intention, brought about a mental condition that is responsible, more than any other one thing, for the fire-waste of America?

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The Burning Ruins of Neuve Chapelle. Photo Taken Immediately After the Town Was Occupied by British Troops

You tell your prospective client that, building with fire-safe materials, he will be reasonably safe from life and property loss on account of fire. The insurance solicitor says very much the same thing—only that while you are preaching protection thru prevention, he lulls his listener into a fancied security by showing that his neighbor—one, three or five thousand miles away—will share in the fire-loss, if there be one. Yours is a policy that lessens the chances of loss—his a policy of shifting the responsibility.

Unless you make the difference in the two kinds of protection known—unless you do your part in changing public opinion on the subject of fire-prevention, the men who are "raking off" One Hundred Millions of Dollars annually, will still let the public believe that fire-insurance protection gives us an individual fire-loss that is "fully covered by insurance." The newspaper that joins fire-loss figures in unholy wedlock with the insurance record makes new customers for the insurance agent.

The future of the burned clay industry is dependent upon an immediate, nation-wide awakening to the folly of building to burn. In one of our most prosperous cities, ninety per cent of the residential building done during 1914 was of wood. The individual may, if he will, build to burn—his own family.

So, when you read in your daily paper that the War Department has asked for $100,000,000 for coast guns alone, think of the $481,000,000 worth of fire-insurance that was written in one year—and that year not very far back. Think that the sentiment aroused by the burning of Rheims, of Alost, of Antwerp and a score of other cities in Europe has turned the national mind to ships of war, to shells and steel cylinders from which to throw them, to armed men in camps, and gold-laced officers in motor cars, while you, reading of Salem, and Hopewell, went right on building with wood—and let your neighbor build that way—because you never thought it profitable, or wise to turn your patriotism in a useful channel—even when it had to do with your own family and your own business.

And what has all of this got to do with the "war pictures" scattered about these pages? Simply this: these towns were visited by a hand-made earthquake and conflagration. A human enemy tried to level them—to make them uninhabitable. With seige guns and fire-bombs, he tried to demolish these homes—homes built with such care that they withstood incendiary fires, started while fire-departments were absent, when winds were high, and every possible condition, save bad building methods, favored a total loss. Every effort bent toward complete destruction.

But the fires could not "spread." They had to be started afresh in each house. Even then, the walls stood, and when the people who built them come back—those of them who are still alive—they will have a salvage that is greater than could be expected from any large fire, in any American city, protected tho the latter might be, by fire-engines, and water-towers, and an army of trained fire-fighters.

For it must be remembered that no large fire was ever "put out" with water. Fires burn themselves out, or are stopped by some open space that is too great for the flames to leap, or by a wall of brick or some other non-inflammable construction. In these European cities, each dividing wall was a fire-stop of well burned brick, well laid in cement mortar—built to stand a hundred years—and a hundred fires.

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A Street in Termonde, Belgium. Here Incendiary Hand Grenades Followed a Bombardment with Colossal Guns

The old cry "The enemy is at your gates" loses its power to startle us, when we are confronted with the fact that the enemy is well within our city walls—daily taking his toll of the country that he invaded, lo, these many years since—fed by the extravagance of a people that builds to burn and then considers itself as being "fully covered by insurance."

The Open Season for Conventions

Face Brick Manufacturers and Dealers, National Terra Cotta Society, Sand Lime Brick Manufacturers and Pottery Manufacturers Hold Annual Elections

CLEAR SKIES and brisk winds marked the work of the weather man at Old Point Comfort, Va., during the sessions of the American Face Brick Association, whose annual convention and election of officers was held amid historic surroundings, the 8th, 9th and 10th of the present month.

The officers who were elected were Paul B. Belden, of Canton, Ohio, president; E. Curtis Clark, of Pittsburgh, Pa., first vice-president; J. M. Adams, of Columbus, Ohio, second vice-president; R. D. T. Hollowell, secretary-treasurer. The following were elected directors: (For three years) H. R. Beegle, of New Galilee, Pa.; John H. Black, of Buffalo, N. Y.; W. H. Hoagland, of Columbus, Ohio; Ralph Simpkins, of St. Louis, Mo.; (For two years) T. P. Cuthbert, of Fallston, Pa.; B. W. Ballou, of Buffville, Kas. These officers and newly elected directors, together with those of the old board who hold over, (Frank W. Butterworth, of Danville, Ill.; J. Parker B. Fiske, of New York, N. Y.; L. G. Kilbourne, of Columbus, Ohio; Joseph W. Moulding, of Chicago, Ill.; Charles C. Stratton, of Bradford, Pa., and Hay Walker, of Pittsburgh, Pa.) will direct the association activities during 1916.

Twenty-four out of the twenty-six companies holding membersip were represented, many of the companies sending three and four men to attend the sesssions, which were unusually interesting.

The guests of honor were Franklin H. Wentworth, secretary of the National Fire Prevention Association, of Boston, Mass., George W. Ritchie, assistant architect, Board of Education, Cleveland, Ohio, and Arthur D. Rogers, editor of the "Brickbuilder" of Boston, and patron saint of the face-brick industry.

All of the sessions were well attended, and the various reports of committees and the "papers" that were read, were listened to most intently, and commented upon freely. In an association which holds members' meetings only twice a year, the work must, of necessity, be done by committees that are active during the entire period between meetings—hence the importance attached to the reports that were made.

It is particularly interesting to note that no committeeman reported "progress." Every report told of some work that had been partly, if not fully *accomplished.*

The "papers" were few, but unusual. George W. Rathjens, of St. Paul, Minn., presented the result of his research work in connection with the attitude of the various building codes and ordinances as relating to the use of brick, and showed that the lack of authentic engineering data on brick and brickwork was largely responsible for legislation that almost invariably made the use of brick extravagant, instead of economical, and, by so doing opened the way for competitive materials. This "paper" has been given its first publication in this issue of "Brick and Clay Record."

T. P. Cuthbert, of Fallston, Pa., started an argument which is destined to keep on growing warmer as the cold weather passes. Anyone who doubts this will do well to read Mr. Cuthbert's "paper," which is printed on another page of this magazine.

W. H. Hoagland, of Columbus, Ohio, presented a carefully studied *resumé* of an investigation which he had conducted for a period extending over several months, relative to the margin of profit above manufacturing cost that it was necessary to add on first quality face-brick, in order to insure a proper interest return on the invested capital. The figures were startling—first, in the diversity of opinion on the points at issue, as among representative men in the same line of manufacture and—second, in the unanimity of opinion that the amount of face-brick actually used in the course of a year (that is, an average year—based on the last five years) *was about eighty per cent of the plants' capacity.*

Without intending to do so, perhaps, Mr. Hoagland's paper brought out the point that has worried face-brick men for some time—the lack of balance between supply and demand—the supply being on the increase, while the demand is not growing as rapidly as it should. It is understood that Mr. Hoagland's paper will be published in pamphlet form, and that it will be given a very generous distribution.

At the banquet, which was held Thursday evening, the 9th, Franklin H. Wentworth, secretary of the National Fire Prevention Association, and——editor of "Salesmanship" were the speakers. Harold W. Holmes, retiring president of the American Face Brick Association, presided, while Robert L. Queisser, of Cleveland, Ohio, acted as toastmaster.

At the suggestion of J. M. Adams, an evening session was held Wednesday, and the time so gained was utilized Friday afternoon; in this way the association members and their guests were given an opportunity of seeing what was to be seen at Old Point Comfort. Many of them staid over Sunday, but the greater number left for home Friday night.

An immense volume of work was outlined for the new year, and the new board of directors will meet monthly, it is expected, in order to get several lines of activity well under way before the shipping season starts. It is rather early to mention these matters now, but as the various departments develop, due mention will be made in these columns.

Without reserve, however, the statement may be made that the American Face Brick Association has done more for its branch of the industry in the few years of its life, than any other organization of clayworkers has done in a similar period, and that it is fixed today upon a firm foundation of work well performed. The promises it makes for the future are to be believed, since it has so well kept the similar promises of the past.

Face Brick Dealers' Convention

With its president absent, and its secretary trying to fill his own position, and, at the same time, preside at meetings and control debate, the Face Brick Dealers' Association of America started another year of its not altogether productive career.

The annual convention, held at the same time and place as that of the American Face Brick Association, brought the selling end of the face-brick business close to the manufacturing end, and some good was done, in this way, to the membership of both organizations.

Archie E. Reid, of Newark, N. J., and Philadelphia, Pa., was elected president, to succeed F. Lawson Moores, of Cincinnati, Ohio.

Terra Cotta Society to Advertise

Twenty thousand dollars will be spent next year in a national advertising campaign to educate architects and builders in the merits of terra cotta as a building material—that is, if the plans made at the annual convention of the National Terra Cotta Society, held at the Hotel LaSalle, Chicago, Ill., December 9, 10 and 11, are carried out.

In the past few years especially, terra cotta has been forging to the front as a beautiful, economical and durable facing for building fronts and interior decoration. Those architects and builders who are more progressive than the rank and file—and a trifle more open-minded—have fully realized the merits of this form of decoration and are using it to advantage, securing artistic work of lasting quality at a cost that is pleasing to the average client. But this is not enough. Ignorance as to these merits on the part of the vast majority of those engaged in the building professions and trades, who should be more consistent users of terra cotta, has stood in the way of its advancement. It is to supply this lack of information, that the society has determined upon a nation-wide publicity campaign, the appropriation for which will, no doubt, be increased as the work develops. A committee was appointed to take the project in hand, the personnel of which has not as yet been announced.

President Fritz Wagner called the convention to order at the opening session, the usual procedure being followed, including the annual reports of the officers and various committees which had been appointed for the year just closing. A number of new committees were then appointed for which considerable work was outlined to be accomplished during the coming year, along lines of general interest to the society and the development of co-operation among the members in the industry.

On Friday evening, December 10, a banquet was held at the Hotel LaSalle at which Thomas Armstrong, of the Conkling-Armstrong Terra Cotta Company, Philadelphia, was toastmaster. Short talks were given by a number of the members.

The election of officers was held on Saturday afternoon, December 11, Fritz Wagner being re-elected president. Thomas Armstrong was chosen as vice-president; Harry Lucas of the Northwestern Terra Cotta Company, Chicago secretary; and E. V. Eskensen of the New Jersey Terra Cotta Company, Perth Amboy, N. J., treasurer. From fifty to sixty delegates were present at the convention, representing twenty-seven different companies.

The consensus of opinion of those present was that 1916 will be a very prosperous year in the industry. "The terra cotta trade has been greatly depressed," said one of the members, "but within the last month or so there has been rapidly growing evidence of returning activity. Building prospects are now excellent in all parts of the country."

Sand Lime Brick Men Prosperous

W. H. Crume, of the Crume Brick Company, Dayton, Ohio, was re-elected president of the Sand-Lime Brick Association at its twelfth annual convention held in the Republican House, Milwaukee, Wis., December 7 and 8.

About forty members and interested parties attended the sessions, which were filled with an air of enthusiasm brought about by the prosperous condition of the industry and its excellent prospects for future expansion. Matters of interest to the members were discussed, during which the "shopping" practices of mason contractors were heavily scored by many of the brickmakers.

Addresses were made by Warren E. Emley, of the United States Bureau of Standards, Pittsburgh, Pa.; W. E. Plummer, Jr., of the Buffalo (N. Y.) Sandstone Brick Company; F. J. Irvine and John L. Jackson, of Saginaw, Mich.

On Tuesday afternoon, December 7, the members made an inspection trip to the plant of the Acme Brick and Sand Company, Barton, Wis. In the evening the annual banquet was held at the Republican House.

In addition to Mr. Crume, the following officers were elected: T. W. Sylvester, Calgary, Alberta, vice-president; W. H. Terry, Toronto, Ont., secretary; and J. L. Jackson, Saginaw, Mich., treasurer. An executive committee was also

A Portion of the Sand-Lime Brick Convention Delegates at the Conclusion of Their Visit to the Acme Brick and Sand Company, Barton, Wis.

chosen, consisting of W. E. Plummer, Buffalo, N. Y.; L. W. Penfield, Willoughby, Ohio; W. Carmichael, Jacksonville, Fla.; I. T. Toepfer, Milwaukee, Wis., and T. Sylvester, Winnipeg, Canada.

Potters Convene at Capitol

Flush with prosperity brought about by conditions as a result of a world war and with still greater opportunities for industrial conquest before them, the members of the United States Potters' Association held their annual convention at the Hotel Raleigh, Washington, D. C., on December 8 and 9.

The first day's sessions were given over to the retiring president's address and reports of the various committees on labor, health, arts and decoration, membership and statistics.

Discussions on costs occupied both morning and afternoon meetings of the second day. Action on reports presented at the first sessions was also taken, but as these matters were considered in executive session, no official announcement has been made as to the details of the meeting. These executive sessions followed a visit of thirty of the members to the White House on Thursday morning, December 9, where they were received by President Wilson.

The election of officers for the ensuing year was the last business of the convention and resulted as follows: T. A McNicol, East Liverpool, Ohio, president; William Burgess of Trenton, N. J., first vice-president; Charles C. Ashbaugh of East Liverpool, Ohio, second vice-president; Marcus Aaron of Pittsburgh, Pa., third vice-president and Charles F. Goodwin of East Liverpool, Ohio, secretary-treasurer.

On the evening of the ninth, the association held its annual banquet in the Hotel Raleigh.

Hollow Tile Plans Active Year

At the regular monthly meeting of the Hollow Building Tile Manufacturers' Association of America, held in Pittsburgh, Pa., December 14, at the Hotel Henry, plans were formulated for the coming year's work on an enlarged scale. Charles T. Harris was unanimously reelected secretary for another year. Some amendments were proposed to the by-laws of the association, to be acted upon at the annual meeting in January, which it was decided to hold in New York, N. J., January 25, 1916, at an hour and place to be decided later.

The showing made by the secretary on work accomplished in the first year of the association's existence was very satisfactory and encouraging to the members present. It was conceded that, like all other associations, the first year had been largely one of creeping to conclusions, but that now the association had grown in strength and confidence to a point where it could get up on its feet and walk. A special effort will be made in the coming year to interest those eastern manufacturers who are not now members, and to induce them to participate in the work of the association.

Empire State Clayworkers Meet

The New York State Ceramics Products Manufacturers' Association held its annual meeting at the Hotel Onondaga, Syracuse, N. Y., on December 17 and 18, re-electing M. E. Gregory of Corning, N. Y., president.

In a paper read by Prof. Charles F. Binns of the New York State School of Clayworking and Ceramics, the history of the school was outlined and its connection with the progress of the ceramics industry brought to the attention of those present. Pottery manufactured in central New York, according to Prof. Binns, leads that of any other section of the coutnry. It is of a decidedly individual type, and if properly developed, will make United States independent of Europe for its supply of high-grade china.

Coming Conventions

Dec. 22 and 23........New Jersey Clay Workers' Assn., New Brunswick, N. J.

Jan. 14 and 15........Western Paving Brick Mfrs. Assn., Dwight Bldg., Kansas City, Mo.

Jan. 18, 19, 20........Canadian National Clay Products Association........King Edward Hotel, Toronto, Ont., Canada.

Jan. 25........Hollow Building Tile Mfrs. Assn. of America ....New York, N. Y.

Jan. 27 and 28........Wisconsin Clay Manufacturers' Association........Milwaukee, Wis.

Feb. 3 and 4........Iowa State Clay Products Mfrs. Association........Iowa State College, Ames, Iowa.

Feb. 8, 9, 10........Illinois Clay Products Association........ Hotel Jefferson, Peoria, Ill.

Feb. 8, 9, 10........Chamber of Commerce of the United States of America, Washington, D. C.

Feb. 17, 18, 19..........National Builders' Supply Association....................Hotel Statler, Cleveland, Ohio.

Feb. 21 to 24........American Ceramic Society, Cleveland, Ohio.

Feb. 21 to 26........National Brick Manufacturers' Association........Hotel Statler, Cleveland, Ohio.

Feb. 22 to 25........American Road Builders' Assn................ Pittsburgh, Pa.

Feb. 16 to 26........THE COMPLETE BUILDING SHOW ....The Coliseum, Cleveland, Ohio.

Members of the association were urged to take advantage of the new state school at Alfred. They were asked to induce high school graduates to take the courses there, that the industry of New York state and, for that matter, the whole country, might be benefited by the service of experts.

Thirty members of the association attended the meetings. Eight students from Alfred also came, with the added purpose of visiting several clay plants and potteries in central New York. The Onondaga Pottery Company's plant was inspected, as well as that of the Iroquois China Company. On their way to Syracuse to attend the convention, several plants at Corning were visited.

In addition to Mr. Gregory, H. E. Jensen of Brooklyn, N. Y., was elected vice-president and E. T. Montgomery, of Alfred, secretary-treasurer.

Good Program For Wisconsin

The sixteenth annual convention of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee, January 27 and 28, 1916, with headquarters at the Republican House.

A program of much interest is being prepared by Secretary S. Weidman, including various topics for which good speakers have been secured. Manufacturing problems, market conditions, the testing of clays and clay products and present tendencies in brick architecture will be discussed. A round table talk will also be arranged for which questions of special interest will be presented and discussed by the members.

It is planned to make the next convention of the association the best in its history, and with this in mind, all members are urged to make early plans to attend. A special appeal is made to those Wisconsin manufacturers who are not members of the association, or who are not in the habit of attending every meeting, to be present at this coming convention.

Oregon Clayworkers See Good Times Ahead

The fall meeting of the Oregon Clayworkers' Association was held on November 4 and 5 at Portland, nineteen members and interested parties being present. An interesting program was carried out, which included a visit to the plant of the Columbia Brick Works at Hogan station, about eighteen miles east of Portland.

On November 20, a business meeting of the association was held at the Portland Chamber of Commerce, President W. E. Wilson presiding. At this meeting the advertising committee made a report recommending its proposed method of publicity. This was followed by a discussion, with the result that the formulation of a plan for raising the funds for this work was left largely with the committee. The afternoon of the 20th was occupied with visits to clayworking plants in and around Portland, including a call at the plant of the Denny-Renton Clay and Coal Company, where sewer-pipe, brick and other clay products are manufactured on a large scale. A trip was made to the Pacific Stoneware Company's plant where the members witnessed the manufacture of jars, vases, jugs, flower pots and other wares. The Standard Brick and Tile Company was also visited. This plant is located on fifteen acres of land near the summit of Canyon Road just outside the city limits, and manufacturers hollow-tile, drain-tile and flue-lining.

WASHINGTON BRICK & TERRA COTTA CO.
WASHINGTON OFFICE 911 H ST. N.W.

MAKING THE MOTOR TRUCK DO A DAY'S WORK

Utilizing the Excess Tractive Power of a Truck, Which Is Usually Wasted, the Washington (D. C.) Brick and Terra Cotta Company, with the Aid of a Trailer, is Getting One Hundred Per Cent Efficiency Out of Its Hauling Equipment. The Truck Carries Three and One-Half Tons of Material, While Two Tons May be Loaded Into the Trailer. With This Outfit, the Company is Hauling from 10,000 to 12,500 Brick Per Day, Whereas One Team Can Only Haul 1,600 Brick Daily. The Company Is Cutting Its Delivery Costs by a Large Figure With This Outfit, Giving Quicker and Better Service to Its Customers

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The Brick Manufacturers' Association of St. Louis, Mo., at its annual meeting on November 5, elected the following officers for the ensuing year: E. J. Ryan, president; W. F. Ittner, treasurer, and Walter Pocock, secretary.

In a year that has generally been very poor for the Canadian brickmaker, the Sun Brick Company of Toronto, Ont., reports a fair business, owing to the receipt of several large orders. In common with many other concerns in Canada, this company has suffered from the activities of the recruiting officer, several of its oldest employes having joined the colors. More and better advertising, a better product and better service, will mark the company's sale program for 1916.

Safeguarding New York's Brick Market

Hudson River Brickmakers Organize to Prevent Recurrance of Disastrous Aftermath Following 1906 Building Boom

CAREFUL INVESTIGATION at New York into causes and conditions leading up to the attempt which is now being made by Senator John B. Rose, president of the Greater New York Brick Company, to prevent a recurrance of the disastrous boom reaction of 1906 (which might follow the present activity) reveals a situation in the East that is extraordinary, to say the least.

It will be recalled that in May of the above mentioned year the price of common brick on the New York market went to the unprecedented price of $11.20 a thousand, wholesale. This meteoric ascension followed a long period of stagnant building, during which brick prices fell to very low levels. Plants were closed down and those that did operate, used only a very small proportion of their machine capacity. Then came a long period of heavy rains toward the middle of the 1905 brickmaking season, which ruined a large quantity of brick on the yards. A sudden closing of the autumn brickmaking season shut off expected production which was to make up the loss, the result being that manufacturers went into the market with very low supplies.

Early in the following spring (1907), a favorable reversal of building activity took place, following the opening of new subway lines and the development of outlying sections of New York City.

The then novel practice of building tall structures of steel made its appearance about that time, and everywhere there was a wild scramble of building investors to increase the earning power of their realty holdings by erecting steel skeleton skyscrapers for commercial and show-room purposes. The world's biggest construction boom was on. There was an unprecedented demand for office space. Buildings went up on almost every block and were as quickly rented. A new building code was contemplated. Labor unions were at the height of their power and were clamoring for higher wages. All combined to make the investor act quickly.

But there were few brick to be had. Manufacturers had been taken by surprise. Prices jumped to unheard-of levels. Brick were brought down from Boston and were rushed to New York from as far south as Maryland. But the spring opened early and, with a rush, everybody began to make brick on an unlimited scale. By the first of August there was a slump back to $5.90 a thousand, and even that figure was shaded. It has taken nine years for the brick market to recover from that slump.

OVER-PRODUCTION A SERIOUS MENACE

Today, conditions are alarmingly similar. During the year fast drawing to a close, manufacturers cut down their production. Instead of using 510 machines, only a few more than 100 were in actual use, and some of these were used only part of the time because of a long drawn out labor trouble at Haverstraw. Instead of the normal output being in the vicinity of 1,000,000,000 brick in 1915, there were barely 600,000,000 made in the Hudson district, and today there is barely 300,000,000 of these brick available for market.

As for construction, things are shaping themselves for the biggest building movement in years. Alterations from January 1 to December 13 this year totaled $12,785,000 for Manhattan as against $10,415,496 in the same period last year. In Brooklyn the expenditures this year totaled $3,909,695, as against $2,749,270 in 1914.

New construction work in all New York from January 1 to December 13 this year figures up to $148,919,078, as against $117,987,472 in the same period last year, or a gain of $30,000,000. Add to that, forty per cent of the $120,000,000 in new construction planned last year that is now being figured, and some idea of the tremendous building movement under way in this section of the country can be obtained. Contemplate this situation with only 300,000,000 instead of at least 700,000,000 brick that should be in the sheds for a normal year like 1909 or 1912, and some conception can be had as to the reason for Hudson common-brick advancing in a fortnight from $6.75 to $8 a thousand at the beginning of winter, and distributors refusing to quote on long term deliveries.

Couple these conditions with the fact that the railroad and lighterage companies controlling the harbor are offering brick barge owners twelve dollars, and in some cases as high at fifteen dollars a day for their barges, and supplying crews, as against a cost to the barge owner of three hundred dollars a month in normal times for mere storing charges for brick under cover in New York, and it is plain to see that manufacturers will store brick this winter under an actual loss, besides taking chances on getting their price, sinking and similar risks. These brick barges make excellent floating storehouses and free insurance goes with the charter.

HUDSON RIVER BRICK PRICES TO SOAR

It does not take much of an imagination to see that the $8.00 level ruling at the middle of this month is not the maximum to which price levels will go. These quotations are for open cargo boat loads. No quotation is being made at all on covered brick. Some manufacturers are holding the best grades for $9.00 per M. under very strict terms.

It is time for broad gauge action, in the opinion of some manufacturers who have ability to foresee where the present trend of conditions is going to lead. The present demand is such as to prevent stacking to any great extent by dealers, altho there is hardly a dealer who would not be glad to stack freely even at present levels, if he could get the brick.

The time is ripe in the opinion of a few of the members of the Greater New York Brick Company associated manufacturers, for some man in a position of leadership to step into the crisis and point out the rocks ahead, if a run-away market is permitted to develop. The first plan was to keep the actual conditions secret, but a few of the dealers sent their own men up the river to count the brick and, upon their return, sudden purchasing in a dull market by those who are habitually slow to enter a speculative situation, caused a complete reversal of plans. The true facts became known and an abnormal situation developed, with a gain in two weeks of more than a dollar and a quarter a thousand in price, and end not in sight.

DIFFERENT FROM A NORMAL YEAR

In normal years it would be merely a question of tiding the low supply over, start manufacturing early in the spring and meet the demand, but the steel mills and munition plants, the municipal work, national preparedness plans and big transportation developments are draining the supply of unskilled labor, and it is a serious question if the former brick plant wages will be at all attractive to the class of labor that was employed last year. It looks very much as tho general wage advances will have to be made if brick are to be manufactured at all. This will affect market prices and, if labor proves scarce, it will keep the brick supply low in a year that is going to be tremendous from a building standpoint. August of this year showed a gain of 13.7 per cent, September followed with a national building gain of 30.5, October went this improvement still better by showing a 37.5 per cent gain and November came in with a 50.5 per cent gain over construction projects in corresponding months last year. These facts are from Bradstreets. It is true that last autumn was an exceptionally bad period, but it must be remembered that the work that did not go ahead then is being added to work projected this year, all of which will come out in the spring of next year.

ALL MATERIALS REACHING HIGHER LEVELS

Were brick alone in the general advance, it might not prove so serious, but all other building commodities are developing higher prices. Again, under normal situations building rentals would be weak, thus shutting off demand and helping to equalize situations, but, instead, demand for building space, whether industrial, commercial or mercentile, is above normal right now, and yet, no thought is given to the customary expansion in business that comes with the turn of a new year. In New York, big buildings that were forty to sixty per cent full in the financial district—the most over-built section of the East—are now seventy-five and eighty-five per cent full, and concessions that formerly were given to induce tenants to come in, are not now offered.

There is still another factor. Manufacturers of common and face-brick, who are in the market for additional equipment in anticipation of future conditions, are finding machine shops filled to capacity. No delivery dates are being promised, except in very rare cases. Practically all machine shop capacity is engaged thru 1916. The Central Railroad of New Jersey was in the market for machine shop supplies recently and a firm that has been handling its business for a decade was obliged to send back the inquiry, stating it could not promise deliveries prior to April, 1917.

PRESENT MOVEMENT IS PREVENTATIVE

The efforts of the president of the Greater New York Brick Company are preventative. Mr. Rose declines to be quoted regarding his plan, but from those close to him, it is learned that the time is here when eastern manufacturers supplying the New York brick market have got to act concertedly and conservatively to foil the big investor who would seek to corner the market. We are authorized to say that there is no steel or other vast financial interest behind the present effort to safeguard the Hudson brick industry from over-inflation, as has been intimated by newspapers. "It is no time to scare the building public away from brick," said a man who has become signatory to the plan, "but rather to keep the price of this commodity within proportionate range of steel and other building commodities. It is time to put aside foibles and get down to broad-gauge business. We have been waiting for this prosperity for a long time. It's here. Let's not strangle it in our enthusiastic endeavor to bid it welcome."

Rough Faced Face Brick —a Menace

In Which it is Claimed that Face Brick Manufacturers Have Created a Condition Destined to Ruin the Industry and Impede the Growth of Brick Architecture

EDITOR'S NOTE: The following paper, read at the convention of the American Face Brick Association, recently held at Old Point Comfort, Va., is here published by permission of the organization named.

By T. P. Cuthbert

General Manager, Fallston Fire Clay Company, Pittsburgh, Pa.

WHEN IT WAS FIRST suggested to me, two or three months ago, that I read a paper at this meeting on a certain subject, I was very much inclined to refuse. I had, at that time, three good reasons for refusing. First—Because I felt that the subject could be handled better by some other member of the association. Second—Because I expected to be very busy during the fall months, and, Third—Because I had no liking for the job.

I said, however, that if no one else did, I would read a paper on a subject of an entirely different nature and *one which I believed to be by far the most important one confronting the face-brick people today,* as it effects not only the present, but the future of the entire face-brick industry.

I refer to "Rough Texture Brick."

It is said that a man never squeals until he is hurt; there is another saying that some men squeal before they are hurt. I belong to the latter class—for it is a fact that neither the Fallston Fire Clay Company, nor myself personally, have been injured to the extent of one dollar by the run of rough face-brick—at least not yet. The dealers with whom we have been doing business during recent years are in a position to know that this statement is true.

I also want to state in the beginning that, while the Fallston Fire Clay Company has not been a manufacturer of rough texture brick in the past, *we have just started to make them,* and from the present outlook we will probably be obliged to make ten or fifteen million "roughs" next year,—not because we *want* to but because we *have* to.

I also want it clearly understood that anything I may say that is detrimental to rough face-brick that are made by other face-brick manufacturers will apply also to Fallston "roughs."

The vogue of rough texture brick, particularly during the last three years, has brought about an almost complete revolution in the business; and it is the object of this paper, by considering the effect that this change has had on the men who make and the men who sell face-brick, to cast a little light, if possible, on what we may expect from rough texture brick in the immediate future—say for the next three years.

WHO STARTED THE FASHION?

Six or eight years ago we frequently heard the question asked,—"Who started the use of rough texture brick?" I don't think that question has ever been satisfactorily answered, but we all know that it got its real start about that time and we know that a great deal of money was expended by both face-brick manufacturers and dealers *everywhere* in establishing this demand. And this was not alone thru the use of printers' ink, but more particularly by dealers in the laying up of very elaborate panels of "rough brick" in their display rooms, each trying to outdo the other, and apparently with but small regard for expense.

THE ADDITIONAL COST OF DISPLAYS

The total amount expended in this way, owing to the frequent changes in displays necessitated by changes in the texture of brick, must have been enormous. And if we add to this the money that has been spent in laying up special panels of texture brick for the individual inspection of special customers, the total amount would actually run into the hundreds of thousands of dollars. More than $50,000 has been spent in this way in New York City alone. Almost any brick salesman or dealer can furnish a list of many jobs where the expense of laying up *special* panels of rough face-brick has amounted to more than the total gross profit of the dealer who secured the order.

This practice I believe goes a long way toward explaining why few dealers have made satisfactory profits during recent years, and also why so many of the older and more conservative dealers, some of whom may be said to have fathered the face-brick business in this country, *express dissatisfaction with present conditions, for there were no such extraordinary expenses connected with the sale of smooth face brick.*

Six or eight years ago, when only "good" rough texture brick were made, when quality was considered rather than price, they were probably profitable to both manufacturer and dealer. Since then, while the cost of selling has steadily increased, both price and quality have come in a straight line downward, until the profits once made on these brick have reached or passed the vanishing point, and the price obtained for smooth face-brick has been pulled down, along with the price for roughs.

EXPECTED BY THE OLDER DEALERS

Is there anything surprising about present conditions? It would seem not. We are getting just exactly what we should have expected and what some of our oldest face-brick dealers actually anticipated. When you take a well made face-brick, wire-cut the face, scratch it up into a so-called rug or otherwise mutilate it, you destroy the very qualities that make it a face-brick; it loses its class, and becomes an absorbent dust and dirt catcher. While on the other hand, if a common-brick is treated in a similar manner, its crudeness and the imperfections that identify it as a common-brick fit only for backing-up, are covered, and it is elevated to a point where "rough texture" face-brick and "rough texture" common-brick reach a common level, and where both sell (or soon will sell) for about the same price.

This means an extra profit for some of the scores of common-brick manufacturers, who have been boosted into the face-brick business by this craze for rough texture brick; but it spells nothing less than ruination for many of the best known men in the face-brick business—the "Fathers of the Industry."

KILLED THE ADVANCES OF TWO GENERATIONS

By the roughening process, the improvements that have been made in face-brick during the last two generations, as well as the expensive equipment on many face-brick plants in all sections of the country, are neutralized and made of little or no account.

In order to accurately forecast what the rough texture brick has in store for us in the future, we have only to look backward and consider what it has done for us in the recent past, and what it is now doing.

WHAT SMOOTH RED BRICK SUFFERED

What effect has the craze for rough texture brick had on the manufacturers of high-grade red brick? Six years ago in a certain section of Pennsylvania, there was located a group of four manufacturers of high-grade red brick. They were doing a large business in all sections of the country, many brick being exported. Today but two of these factories remain in the face-brick business, and altho one of these is making "rough texture" brick, as well as smooth, the total shipments of face-brick from that section is probably less than twenty per cent of what it was five years ago.

In a certain district in Ohio, there are six face-brick factories, most of them—until three or four years ago—prosperous, going concerns, their products well known. *The production of these factories during recent years has been less than fifty per cent of normal, yet their stock sheds are fairly bulging with brick,* and when such plants as these and some of the best known manufacturers of red brick are having a hard struggle to keep their heads above water, it is time for every one of us to give some serious consideration to the cause of these conditions.

I know of another district where a widely known and sold face-brick is manufactured, to mention the type or shade of which would be same as naming the factories. There is in this section today, a stock of *not less than thirty million brick,* about five times the normal stock for this season of the year.

In the Ohio and Beaver Valley sections, some of the manufacturers of mottled brick have had a similar experience. The production of this type of brick has been more then cut in half [illegible] past five years, and many factories have been [illegible]aving-brick business or have been forced [illegible]irely.

[illegible]ND FOR FACE BRICK GROWING

[illegible]een inclined to explain these conditions by a [illegible] in the demand for face-brick, or to depressed [illegible]ess conditions, but this is not correct; it is a [illegible]e percentage of buildings, particularly houses. [illegible]e-brick have been used, has rapidly increased [illegible] years, and the demand for face-brick has shown [illegible]ng increase in spite of general business con-[illegible]

[illegible] face-brick in this country have actually in-[illegible] 33 per cent during the last six years and [illegible] years we ever had, with one single excep-[illegible] the last three. Nor can we give rough [illegible]redit for being responsible for this increase, *[illegible]t year the face-brick business ever enjoyed was 1909, when rough texture brick made up a very insignificant part of the total.* These figures are not guess work, they are as correct as can be obtained and can be verified by reference to the United States Geological Survey's "Statistics of the Clay Working Industries" for the year 1914.

PRICES DWINDLE IN AN UPWARD MARKET

The business of most face-brick manufacturers has shriveled up, not because of general business conditions, *but because of the craze for rough texture brick.* But this is not all of it—it is not even the worst of it. The average price of all legitimate face-brick made in this country, whether smooth or rough texture, has come in a straight line downward, purely and simply as the result of the influence rough texture brick have had on the business, *and in spite of the fact that the price of practically every other manufactured article has gone in a constant, straight line upward.*

The tendency of common-brick for the last six years has been upward, with prices at their very best during the last two years. The average price obtained for paving-brick for the last six years has increased constantly until the end of 1914, the increase from 1909 to 1914 being approximately thirty-two per cent, and 1914 was the best year in the history of the paving-brick industry. All of these figures can be verified on pages 460 and 461 of the Geological Survey's Statistics for 1914.

While the price of everything else has gone up and is still going, the prices we have obtained for our product have been going down, and we have not the slightest reason for supposing that they have struck bottom.

BAD BUSINESS FOR THE INDUSTRY

What excuse was there for this craze for "rough texture brick"? To my mind there was very little. We will all grant that there are certain jobs where rough brick seem to fit and, with climatic and other conditions taken into consideration, they are a good business proposition for the home builder or investor. No one admires such buildings more than I, for even a log house, or a bungalow built of cobble-stones looks good in some locations—if the architecture fits the material. *But we don't find the lumber dealers trying to create a foolish fad for log-houses.*

Previous to three years ago and before the Fallston factory changed hands, a few rough face-brick were produced at that factory and a medium shade of Fallston rough texture brick were used in a house on Shady Avenue, in the Squirrel Hill District of Pittsburgh. Immediately adjoining this house the same builder also used Fallston *smooth* brick of the same shade. I saw these houses while they were going up and after they were finished, and it was almost impossible even for a man in the face-brick business to see any difference between the two brick, even from across the street. These houses are now about six years old,—one job is of a greasy appearance and extremely dirty while the other presents almost exactly the same appearance as it did when finished. Cases that parallel this can be found in all sections of the country. *It makes no difference whose rough texture brick is considered and it makes no difference whether they are made on common-brick plants or on face-brick plants, the story is the same;* they get dirty, and if they are soiled and dirty at the end of a very few years what will happen to them in ten or twenty years? I know these statements don't sound nice, but I know, and you know, that they are true.

HOW MANY MANUFACTURERS ARE AHEAD?

Leaving the future out of the question for the moment, how many face-brick manufacturers and dealers are ahead of the "rough brick" game? And, if we are not ahead of it now, what can we expect from it in the future, in view of present common-brick competition? We are making our rough face-brick in exactly the same textures as the common rough-brick makers, and some of us are paying 25c per M. for the privilege of doing it.

Do we have to stand for this common-brick competition? I think not, for there is still one kind of brick that common-brick manufacturers cannot imitate, and that is a *good* brick,—with a good, smooth face.

THE CHICAGO CLAY SHOW

About four years ago, practically every important manufacturer of face-brick was called upon to contribute to a fund for the making of elaborate brick displays in the Coliseum during the big clay show; in spite of the fact that most manufacturers were then chiefly interested in smooth face-brick (many factories making them exclusively) every important display of face-brick (including all of the prominent panels) all ornamental brick walls, gate ways, and even the "model" brick house, were laid up exclusively with rough texture brick; *not a single important display of smooth face-brick was made.* Practically all of the architects, builders, and dealers in face-brick in the Chicago district during, and for two or three years after the clay show, were rooting exclusively for rough texture brick. They and brick people elsewhere talked "art" in rough texture brick until they persuaded themselves that all of the art in architecture began and ended in wire cut face-brick, and they simply jammed their "kultur" down their customers' throats.

And what was the result? Why, the natural one. They accomplished what seemed impossible and brought about a complete revolution in the face-brick business; and I know that I am not overstating the facts when I say that more, much more than seventy-five per cent of all face-brick used in Chicago since the clay show have been roughs.

THE EFFECT UPON PRICES

Since the clay show, prices obtained for face-brick in the Chicago district have come tumbling down like a house of cards, and the quantities of legitimate face-brick that have been shipped into the Chicago district this year, whether rough or smooth, have been cut in half, the big half now going to the concerns who, previous to the clay show, were manufacturers of common-brick.

Have our friends the brick dealers been benefited by the craze for roughs? I am in a position to know that many of them have not, for I have discussed the matter with a great many dealers during the past few months. Many of them are old established concerns whose names are known to all of you, and they, without exception, have expressed dissatisfaction with the conditions that have been brought about by rough texture brick. Several of them expressed their intention of openly opposing the sale of rough texture brick next year, and of instructing their salesmen accordingly.

Can brick dealers bring their business back to the old footing by pushing the sale of smooth texture brick? I, for one, believe they can; in fact it has already been done in one of our largest cities. In Philadelphia five or six years ago, rough texture brick were rapidly obtaining a foothold, exactly the same as they were doing elsewhere.

WHAT PHILADELPHIA DID TO ROUGH FACE BRICK

A year or two after the craze started, it suddenly stopped. It didn't fall away; it didn't peter out; it just stopped There were just three reasons for this, *but to mention these reasons would simply be to mention the names of the three leading brick manufacturers and dealers of the city of Philadelphia.* These men had foresight, where most of us had only hindsight.

I repeat that the rough brick craze which started in Philadelphia was suddenly and effectually stopped, with the result that *the average price now obtained for face-brick in that city is higher than in any other important city east of the Mississippi River,* and the profit per M. is, also, correspondingly high; and I am in a position to know that the present situation in Philadelphia is not the result of chance, but is purely and simply the result of longheadedness on the part of the face-brick people there.

What has been done in Philadelphia, can be done elsewhere. In the Middle West and in other sections where rough texture brick are the fad, the manufacturers and dealers started the demand by trimming their windows, so to speak, with rough texture brick. *But no expensive displays would be necessary to bring smooth brick back to their former popularity,* for a comparison drawn between smooth and rough texture brick walls which have been standing for a few years will serve all purposes most admirably.

BUILDINGS THEMSELVES THE BEST ARGUMENTS

The smooth face jobs have, for the most part, remained clean, but the rough texture jobs that have aged a little, now resemble autumn leaves grown old; for them the melancholy days have come, and for the owners of the buildings as well, unless some of our artistic friends who visit them again can teach them how to "paint autumn leaves."

In my opinion one of the best ways to kill off common-brick competition is for manufacturers of face-brick, particularly manufacturers of red face-brick, to make smooth face-brick in all the varying shades in which they have been making rough face-brick, *including the flashed brick with red cores and blue and brown edges and other markings,* and for them to make them as smooth and perfect as possible.

Such a brick will lend itself to artistic bricklaying quite as well as a rough texture brick of the same shade. The principal difference between the two brick will be that the smooth brick will have a better and cleaner cut appearance in the wall and the man who sells it can say it will stay clean without endangering the future of his immortal soul.

A brick wall built of hard burned, smooth face-brick will stand the test of time and is the best possible advertisement for brick, just as the poorest possible advertisement is a brick job that is ruined by soot and dirt, *as most of the rough brick jobs in the country will be in a mighty short time.*

If the face-brick factories of this country were owned by a trust and I were the Sales Manager, I would not advise the stopping of the manufacture of rough texture brick, but I would advise the production with smooth faces in all of the shades that we have been producing in "rough texture brick," and I would have my salesmen put forth every effort to have these smooth face-brick laid up in all of the good color combinations and designs that have been used in laying up rough texture brick, and I would start to advertise the advantage of smooth over rough texture brick by running a small advertisement in the real estate columns of the papers in the larger cities. The advertisement would be very short and made to read something like this:

> "The Jimpsons built with rough [illegible]
> Some salesman taught them ho[illegible]
> It must have been a dirty trick, [illegible]
> For look at the —— things now."

Now gentlemen it is not the purpose of this pa[illegible]
any definite way for bettering the conditions i[illegible]
business that have been brought about by roug[illegible]
The question is too big and too important [illegible]
tried to point out some things which you alr[illegible]
hope that by bringing them to your mind [illegible]
gether, you will at least give the situation [illegible]
tion and see whether we are helplessly in[illegible]
common-brick manufacturer or whether so[illegible]
done. Here, as I see it, is a chance for [illegible]
accomplish something for the benefit of [illegible]

Ford Plant Schoolroom of Paving Brick Institute

VARYING its regular program of seeing what the "other fellow in the paving-brick business" is doing, the Institute of Paving Brick Manufacturers hit a "high spot" in efficiency by visiting the Ford Motor Car Company's Detroit plant.

F. L. Manning, of the Peebles Brick Company; O. W. Renkert of the Metropolitan Paving Brick Company and Mr. Aubrey of the Bessemer Limestone Company Waiting for the Rest of the Party to Come Out of the Ford Plant

ASSAILED BY A CURIOSITY to learn how it is done, and with the hope of seeing mechanical achievements that could be applied with profit to their manufacturing problems, the Paving Brick Institute met at Detroit, Mich., on December 8 to witness a Ford automobile "born" every minute.

The trip to the Ford plant was the first thing scheduled for the day, and after much prodding and urging on the part of George Orr of those members who tarry long in slumber or who are loath to leave the breakfast table, the party was seated in its automobiles and driven to the plant of the "messenger of peace."

"It is difficult for the simple mind of the paving brickmaker to grasp all of the fine points in the Ford factory, especially on his first visit," is the way in which one of the members interpreted the party's experience. "It is kind of the 'stunner' to see the 'Henries' snort away on their own power from that traveling erecting table in intervals of less than sixty seconds. Even Fred Kanengeiser, who is accustomed to what is considered large and speedy practice in the paving-brick business, was trying to brush a Ford or two off his neck as he went out of the plant."

The large generators at the factory driven by a combination of producer gas and steam engine, in which the exhaust from the gas cylinder was used to super-heat or steam heat the water for the boilers, proved of considerable interest to the party.

A Portion of the Party Upon its Return to the Statler from the Morning's Inspection Trip. Reading from Left to Right the Members are: Prof. R. T. Stull, Mr. Wallace, R. B. Keplinger, D. C. Wilcox, F. R. Kanengeiser, Mr. Weaver, F. E. Schultz, G. C. Carlyle, A. B. Kline and J. C. Kline.

On returning from the Ford plant to the Statler, the members partook of a sumptuous luncheon, following which time was allowed for committeess to meet and prepare their reports before President Fred Kanengeiser called the afternoon session to order. No papers were read at this meeting, the time being taken up with committee reports, the election of officers for the coming year, and the planning of future meetings and programs. Mr. Kanengeiser was re-elected president of the Institute; D. C. Wilcox, secretary, and O. W. Renkert, treasurer.

It was decided that the first 1916 meeting would be held at Portsmouth, Ohio, on April 12. The subject for discussion will probably be "Costs and Cost Systems." The investigation of cost-keeping methods and the visits to local plants will make this meeting of great value to those who attend. The second meeting is scheduled for Alton, Ill., on July 12, the subject being "Electrically-driven Paving Brick Plants." An expert on electrical transmission will probably be present to read a paper at this meeting. Since the Alton Brick Company's plant is electrically driven, the members will have an opportunity to study the subject from a practical as well as theoretical standpoint. October 11 was proposed as the date for the third 1916 meeting, but no decision was reached as to what subject would be discussed.

At the evening session, Prof. R. T. Stull read a paper on "Dies and Lamination Troubles," his paper being illustrated with stereopticon slides.

"There are few paving brickmakers who cannot lament on laminations for an hour or two," as one of the members put it. "That is exactly what we did after Prof. Stull finished his paper. We sat around and discussed lamination, auger and die troubles, until we had to leave for our train."

About twenty active and associate members were present at the Detroit meeting. The Bessemer Limestone Company was represented by Fred Kanengeiser, Mr. Wallace, P. A. Kanengeiser, Mr. Aubrey and Mr. Weaver; the Alton Brick Company by Harry L. Meyer; the Metropolitan Paving Brick Company by O. W. Renkert and R. B. Keplinger; the Peebles Brick Company by S. C. Peebles and Mr. Manning; the Purington Paving Brick Company by W. G. D. Orr; the Deckman-Duty Brick Company by S. M. Duty and D. E. Humphrey; the Wooster Shale Brick Company by F. E. Shultz; the A. F. Smith Company by Louis A. Smith; the John Kline Brick Company by A. B. Kline and J. C. Kline; the Carlyle Paving Brick Company by G. C. Carlyle; the Barr Clay Company by C. C. Barr; the Alliance Clay Products Company by D. C. Wilcox, and the Dunn Wire-Cut-Lug Brick Company by R. T. Stull.

Clay Products Company Planning Enormous Plant

A million dollar clay plant, the construction of which has already been started, is the aim of the newly organized Clay Products Company, of Brazil, Ind., which succeeds the Chicago company of the same name.

For ten years, the Clay Products Company has been manufacturing conduits and hollow-tile, but during the past two years, the company has been developing a business in shale products, seeking to round out the production of this ware to such proportions as to consume the entire fifty-seven feet of shale which is now uncovered at its mammoth clay pit. The pit furnishes a high-grade shale, coal and a seven-foot vein of plastic fire-clay.

With this idea in mind, the company has determined upon considerable expansion, construction having already been started on an eight-kiln addition to the present hollow-tile plant. The kilns at this plant are to be of the round, down-draft type, thirty-two feet in diameter and built thruout of the highest grade materials. Additional drier facilities will also be provided, the plant up to the driers having been built to take care of this increase. The original plant of the Clay Products Companv was destroyed by fire in 1912 and the present unit was erected in the winter of 1912-13. It is modern in every respect.

Besides this addition to the present plant, which manufactures conduit and hollow-tile, plans are now being drawn for a paving-brick unit which will have a capacity, when completed, of 100,000 brick per day. A unit for the manufacture of interlocking tile will also be erected, this, together with the paving-brick unit, having its raw material prepared in one grinding and screening plant.

The engineers having the proposition in charge have decided upon the installation of producer-gas-fired continuous kilns for both the new hollow-tile and the paving brick plants, no expense being spared to make the rest of the equipment in accordance with the most modern methods of handling clay.

The completion of the two new units, together with the increase in the present hollow-tile plant, will total a daily capacity of between one thousand and eleven hundred tons of finished ware. Furthermore, the new continuous kilns will be built in independent units of fifteen chambers each, permitting the manufacture of four different products at a time, if desired, or the capacity of all the units can be thrown on any one product. Flexibility has been sought in all three factories.

The management of the company remains unchanged, H. H. Tittsworth being president and C. F. Shannon, secretary. The corporation has been enlarged to $2,000,000 capital stock, definite arrangements having been made to dispose of a sufficient amount of the securities to take care of the present plans for expansion. The capital is also sufficient to furnish the necessary funds for future growth.

Making a Cement Joint Waterproof

One of the points that has recently been raised in connection with efflorescence, is the difficulty of securing a waterproofing compound which can be mixed with the cement that is used in the mortar joint. It is said that the United States Army engineers have long used the following mixture for waterproofing cement, and there is little reason to believe that it will not work with cement mortar joints:

To a mixture of one part cement to two parts of sand, add one pound of alum to each cubic foot. Mix these well, and then add water to which has been added three-quarters of a pound of soap to each gallon. This combination, it is said, does not materially affect the strength of the cement, and will be safe to use as a mortar joint.

To wash down, use a mixture of one pound of lye and two pounds of alum in two gallons of water.

A Panoramic View of the Clay Product Company's Present Plant at Brazil, Ind.

The Attitude of Those Who Control the Use of Building Brick

Showing that Lack of Knowledge Restricts the Natural Expansion of Brick Production and Its Use An Economical Structural Material

EDITOR'S NOTE: The following paper, which was read before the American Face Brick Association's convention, held at Old Point Comfort, Va., December 8, 9 and 10, 1915, is the result of the work of the "Research Committee" of that organization, of which the author is chairman. It answers the question that is so frequently asked in connection with the stunted growth of the building brick business. If the manufacturers of a material do not know its economical limits, can they rightfully expect others, infinitely less interested in its future, to provide a way whereby it may be given a more intelligent recognition?

By George W. Rathjens

THE BUILDER OF TODAY is governed by statute, the various municipalities having certain rules and laws regarding structural materials, and the use of same. These statutes are intended to secure the public's *safety*—both personal and real. They are usually grouped under the head of "Building Codes," and it is essential that building codes be conservative.

The four following factors necessarily play an important part in the construction of any "code": 1. The properties of structural materials; 2. The maximum variation in these properties; 3. The human equation; 4. The forces and conditions to which the structural materials will be subjected.

When we consider that building ordinances are the result of current practice, supplemented by technical knowledge, it is fair to say that they reflect the *established* merit of the structural material, and the *acknowledged* permissible types of construction. The engineer, architect—even the legislator—naturally feel that when advances have been made in any industry that make a structural material more efficient and more desirable for certain building purposes, *the interested industry* will endeavor to secure a deserved recognition in building codes, ordinances and regulations.

The manufacturers of building brick are vitally interested in securing a full recognition of the excellence and adaptability of the material they are making, to practically all modern building conditions. Some spasmodic effort has been made—generally along a line of "protecting" one or another interest. What is the result?

The legal minimum thickness of brick walls has a tremendous effect upon the cost of brick construction. Here are some examples of the "established merit and acknowledged permissible types" of brick construction:

CONTRADICTORY PROVISIONS IN BUILDING CODES

Section 23 of "The Building Laws of the City of Boston," dated 1914, (1) specify eight inches as the minimum allowable thickness for brick houses in the dwelling house class; while section 103 of the "Building Laws of the City of St. Louis" dated 1911 (2) and furnished to the writer in 1914 as the *present building code*, calls for thirteen-inch walls. Section 26, paragraph 15 of the "Building Code Recommended by the National Board of Fire Underwriters" (3) allows, with certain restrictions, *eight-inch brick walls outside of fire limits.*

The Underwriters specify, under the same section, fifty-five feet as the maximum allowable span for eight-inch brick walls, with a height limited to thirty feet, while section 79 of the New Orleans Building Code (4) specifies twenty-five feet as the maximum allowable span for eight-inch brick partition walls (twelve inches is the minimum for outside walls) and limits the height to fifteen feet.

Let us compare this with Detroit, (5) where the allowable height for eight-inch outside walls is given as *forty* feet. And Columbus (6) provides for dwellings, apartments and "flats" a minimum wall thickness of nine inches, limited in part by a maximum *length* of sixty feet.

Incidentally, I would like to call your attention to part of paragraph (d), section 519 of the Chicago Building Code, which reads as follows:

"The first story walls of one-story buildings and the second story walls of two-story buildings in Classes III and VI may be eight inches in thickness, *provided that when a pressed-brick face is used, no wall shall be less than twelve inches in thickness,* and an eight-inch brick or solid concrete partition wall may be built in a building of any class, but in no case shall any eight-inch brick wall be more than *fourteen feet* in height."

It is interesting to compare section 377 of the Seattle Building Code (7) with part (a), section 520 (8) of the Chicago Building Code. Seattle specifies a one-half inch projection for each corbel course, while Chicago calls for a one-inch projection, an increase of one hundred per cent.

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(1) Section 23, Boston Building Code.—"Except as provided in section seventeen, the external walls above the foundation of houses for habitation of first or second class construction, and not exceeding sixteen hundred square feet in area and not over three stories high, shall be not less than eight inches thick for external walls and not less than twelve inches thick for party walls. In case any part of such building is adapted for any use other than habitation, all walls shall be not less than twelve inches."

(2) Section 103, "Building Laws of the City of St. Louis." Brick walls for Dwellings, Lodgings and Tenement Houses—"The minimum thickness of brick external and division bearing walls for dwellings, lodging and tenement houses, shall be, for the three top stories, thirteen inches; for the next two stories below, eighteen inches; and etc."

(3) Paragraph 15 Section 26 National Board of Fire Underwriters' Code—"Brick or concrete walls of buildings outside the fire limits which under this ordinance could be of wood, may have a minimum thickness of 8 inches. Such walls shall not exceed two stories or 30 feet in height, exclusive of gables, nor shall they exceed 55 feet in length unless properly braced by cross walls, piers, or buttresses."

(4) Section 79, New Orleans Code, reads in part: "Interior or partition walls may be constructed four inches less in thickness than given in the table of this Code, provided the span does not exceed twenty feet, and provided further that no wall eight inches thick shall be more than fifteen feet in height."

(5) Section 2, Article XVI, DETROIT CODE.........."Two story single residences having a ground floor area of not over one thousand square feet may have eight inches outside masonry walls on a twelve inch thick foundation wall up to the first floor level, provided, however, that said outside walls do not exceed forty feet in height."

(6) Section 25.

(7) Section 377 of the Seattle Code reads in part: "........When it is deemed necessary or desirable to corbel brick walls to afford bearing for joists or other framing, such corbels shall not exceed ¼ the wall thickness in total projection on either side of wall, nor ½ inch projection for each corbel course."

(8) Part (a) section 520 Chicago Code: "In buildings two stories or more in height wherever party walls or partition walls twelve inches or less in thickness are used for the support of joists in buildings of classes I, II, IV, V, and VII, the joists shall be supported on ledges of brick formed by corbeling not less than four courses of brick and the upper course shall project four inches beyond the face of the wall and the joists shall be protected from the bottom to the top of same for the distance of the projection of the corbel by solid brick-work laid in mortar."

In the February, 1915, issue of the "Canadian Engineer" an extract by Mr. C. R. Young, of the University of Toronto, based on a report submitted in February, 1914, to Judge Denton, in connection with the investigation of the City Architect's Department of that city, was published. It read:

"Since curtain walls carry only their own weight, and usually for only one story in height, in certain cases, it is absurd to require fourteen inches of brickwork for them. In all buildings, the space between the top of a window in one story and the bottom of a window in the next story above might safely be filled in with any material equivalent to wire-glass in fire resisting qualities.

"The contention that heavy brick walls are needed to prevent falling walls from breaking into a building is groundless, for no matter how heavy the curtain walls might be, falling walls would expose the interior of the building to flames, by breaking thru the windows. Nor is the relative smallness of the window areas any safeguard, for there is nothing to prevent the builder from constructing—and indeed, he often does construct—the whole space between columns, from one floor to another, of glass. *But if he wishes to use brickwork at all, it must be fourteen inches in thickness.*

A PANE OF GLASS EQUALS FOURTEEN INCHES OF BRICK

"From this it follows that, according to the Toronto building By-Law, *one thickness of glass has a protective value as great as fourteen inches of brickwork or plain concrete.*

"That a thickness of nine inches of brickwork under and over windows is adequate, should follow from the fact that nine-inch walls are permitted by the By-Law for more severe conditions of loading than exist for curtain walls. Perhaps the best example of this is the use of nine-inch walls for external load-bearing walls of dwellings two stories in height. While curtain walls sustain only their own weight for one story in height, these bearing walls carry the entire weight of the floors and roof, in addition to their own weight for two stories in height.

"A further abuse in the matter of curtain walls exists in the requirement that they shall be increased by four and one-half inches in thickness below the uppermost seventy-five feet of the building, and by an additional four and one-half inches for each sixty-foot section below that. For the same story heights, curtain walls in the lower stories carry no more load than those in the upper stories, and the thickening is no guarantee that falling walls may not break thru into the building. Windows are allowed on any side of a building and may fill entire panels of wall space, as they very often do for the first story or two above the ground."

The practical effect of this indefensible curtain wall specification is to increase the weight and size of the wall girders, wall columns and wall footings, to add a great deal of unnecessary brick, concrete or tile to the walls and reduce the available floor space.

FINANCIAL WASTE IN MATERIAL AND FLOOR SPACE

Actual estimates show a financial waste running into thousands of dollars for this reason alone, and in representative buildings. For a ten story building, say, 80x100 feet, the waste, neglecting the value of lost floor space, is from $7,000 to $10,000.

In a memorandum submitted by Mr. A. H. Harkness, of Harkness & Oxley, consulting engineers, to Judge Denton in a recent inquiry into the City Architect's Department of Toronto, it was shown that the cost of the Dominion Bank Building was increased by $14,200 by reason of the requirement that curtain walls shall be thickened below the top seventy-five feet of the building. *Of this, $9,200 was for extra masonry and $5,000 for extra steel.* Mr. Harkness also calculated that the loss in annual rental value, because of the reduction in available floor space, is $5,900.

The foregoing quotations must bring vividly before us the chaotic conditions pertaining to brick construction.

It can readily be seen that, under existing building regulations, it is nearly impossible when building with brick to use this material economically. When a man builds, he gets from the steel, cement and lumber all the work there is in them, *but in the majority of cases he is legally barred from economically proportioning his brickwork.* The result is obvious. Brick construction is the most wasteful and costly.

ENORMOUS INCREASE IN BRICK CONSUMPTION

The enormous increase in the use of brick, both face and common, that would follow the adoption of reasonable building codes, based on safe and sane construction principles, must be apparent. While we are talking the economy of using brick, and point to the low upkeep cost, and other interesting, but somewhat extraneous matters, the material that we are making and selling is being legislated out of use by building codes that are as contradictory as they are varied.

The writer has called attention to the fact that engineers, architects and legislators alike depend upon the established merit and acknowledged permissable types of construction. How are we to establish the merit of our material and compel the acknowledgment it deserves? How are we to educate the public to the point where brick can and will be used to its fullest economic structural value?

Before we can seek this recognition, we should, of a surety, know the full structural worth of brick, for we cannot hope to convince the man or men who are drafting a building code on points that are still in doubt in our own minds.

BRICK MEN KNOW VERY LITTLE ABOUT BRICK

We are not at all familiar with our wares when we know only that brick resists fire, that it endures forever, that it is one of the best structural materials known and that its resistance to failure in compression is five, six or ten thousand pounds per square inch.

We must consider not only the brick as a unit but as a part of a combination. Its structural properties in this combination must be determined; we must know the efficiency of various bonds, we must determine the adhesive qualities of our ware in combination with different mortars. The elastic properties of all these various combinations should be definitely established.

We must then consider these different kinds of brick (face, common and tile) and mortar as structural units and determine their stability when laid in a wall or pier, and also the effect of various loading—vertical, horizontal and eccentric. What are the practical limits for eight, thirteen and eighteen-inch brick walls?

Piers and buttresses; how shall we determine their proper dimensions? What is their definite structural value?

Is it practical to reinforce brick walls with steel? The details of various methods of reinforcement should be studied. Winnipeg has recognized reinforced brickwork in their By-Law No. 7656, passed April 7, 1913, allowing a reduction in wall thickness when same are properly reinforced, while New Orleans (9) says, "No lining or reinforcing of walls shall be counted as an increase in wall thickness."

It is evident and logical that all the above data can only be of practical value when same is based or correlated with the properties of each unit composing the combination.

As manufacturers and practical men we know that these properties vary with different brick, depending largely upon the raw material, the preparation of the clay and the method of molding and burning.

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(9) Section 79, Part XI.

Therefore, one of our first steps is to arrive at a feasible classification for our ware; one which will make it possible for the inspector, architect or engineer to readily determine the practical structural value of any individual brick.

The biggest and most important work before us is this classification. In order to arrive at a practical classification, it will be necessary to consider the raw material—geologically, physically and chemically; the method of preparation, the mode of manufacture and the burning. When considering the finished product we must take into account all its various structural properties; compression, transverse bending, elasticity, conductivity, freezing, absorption, shear, specific gravity, hardness, etc.

THE NEED OF A HAND-BOOK ON BRICK

The work outlined in this paper should be condensed into a hand-book of brick construction and also used as a basis for lectures on brick and its use. These lectures should be given before various technical organizations and to engineering and architectural students of our universities, in that way educating the designer to the merits of good brick construction and impressing upon him the value of brick as an economic structural material. *I firmly believe that if this work were properly carried out, a brick house would more than compete, in first cost, with frame.*

A hand book would fill a long felt want. It would bring before the designer, contractor and consumer, brick and brickwork in its true light, giving him details and data so that the material we are making would receive recognition for its full structural worth. The combined result of these lectures and a good handbook would be the bringing about of uniform and fair legislation toward brick.

There are, of course, a number of ways in which this work could be carried on. Preferably arrangements could be made whereby a research fellowship would be established with some technical institution. This fellow could prepare and give lectures mentioned above and prepare, from time to time, sections of the hand-book. He should also take an active part in technical committees, presenting to them the results of his work so that eventually our material will receive full recognition. Such a fellowship should be supported by all organizations interested in brick and burned clay tile.

Should the above arrangements prove impractical, a committee could be appointed with instructions to try and make arrangements with various universities for the preparation of theses on brick and brick construction. This committee could then, thru the temporary employment of some expert, analyze and work over these various theses and any other data which might be secured, and give the information so obtained a permanent form in a hand-book.

THE ECONOMIC SIDE OF THE QUESTION

In presenting this matter to the universities it is well to emphasize the fact that the borrowing power of a city is determined largely by its buildings; that is, a city in which the large majority of buildings are fireproof and properly constructed can more readily sell bonds than a city which has legislated continuously against fireproof construction, with the result that many of its buildings are built to burn—that is, are constructed largely of wood.

A BRICK FARMHOUSE IN WISCONSIN BUILT JUST BEFORE THE FAMOUS GOLD RUSH
Erected In 1846 by Asa Snell, with Brick Which He Made Himself From Clay Dug on His Farm. This House was the First Built of Brick In Jefferson County, Wisconsin, and is Undoubtedly Among the Pioneer Brick Houses in That State. According to Ex-Governor W. D. Hoard of Wisconsin, Who Now Owns the Building, the Brick are in as Good a State of Preservation as When First Made. Mr. Hoard May be Seen at the Extreme Right of the Picture Looking Out Over the Farm Which Bears This Historic Landmark

Clay Products Considered as Engineering Materials*

A Paper Presented at a Meeting of the International Engineering Congress, 1915, in San Francisco, Cal.

By A. V. Bleininger, B. Sc.

Bureau of Standards, U. S. Department of Commerce.

(*Continued from December 7 issue.*)

DRY-PRESSED BRICK, when hard burned, result in the greatest compression values, owing to their density. In well-burned building brick, lamination structure, unless very excessive, has no special practical importance. It does, however, contribute toward the variable results obtained in testing. In this respect, the shape of the test specimen is of primary importance. Theoretical considerations show that the cube, or still better, the prism of square cross section, the height of which is one and one-half times the breadth, gives best results, which is shown by the symmetry of the fracture planes. If a brick is tested flatwise, in which position the ratio $b_1 \div h = 2$, the resulting compressive strength will be 22 per cent greater than that of a cube made from the same material, and 33 per cent greater than that for the specimen in which $b_1 \div h = 0.66$. The practice of testing whole bricks flatwise is especially to be condemned, since the amount of side restraint in this case is very great and is certain to result in a fictitious value.

Practice of Testing Brick

The common American practice is to test half-brick, bedded in plaster to secure parallel surfaces. It would be far more desirable to test two half-brick, one cemented upon the top of the other, as is done in German practice; or, still better, to cement together three halves, so as to form a column of greater height. In this manner the side restraint of the machine heads would affect the top and bottom pieces, but would not affect the middle piece. The objection to this practice is, of course, the more laborious preparation of the specimens. A compromise might be suggested, viz., the testing of half-bricks on edge. While not as desirable as the method suggested above, this manner of testing is greatly to be preferred to placing the brick flatwise. It gives more consistent, sharper results, and is carried out even more easily.

The relation between these two kinds of tests was examined by determining the crushing strength of the brick* collected from about 15 brick plants within a radius of 150 miles from Washington, D. C. In this work the brick were cut in two, one-half having been tested flatwise, and the other on edge. The brick tested were of the harder grades and nearly all of them had been made by the stiff-clay process. Both shale and clay brick were represented, and 178 brick were thus tested. The average compression strength of the brick tested flatwise was 6,226 pounds per square inch and of the brick tested on edge 5,399 pounds. The ratio was hence $6{,}226 \div 5{,}399 = 1.153$.

Brick Specifications

Any one familiar with the various grades of brick used thruout the country must realize that, owing to the widely differing kinds of raw material, considerable variations prevail in regard to the psyical strength of the products. The alluvial clay deposits of the Hudson river produce a different grade of brick from the calcareous glacial clays of the Chicago district, or the shales of Pennsylvania, Ohio, Indiana, West Virginia, and other states, or the surface and loess clays of the more western states. A discussion of this subject is necessary, therefore, in order that it may be possible to adopt specifications insuring to the user products of reasonable strength. It would not be fair to make no differentiation between a well-made and burned product and an inferior one, as is now the case in many places where the average contractor looks more to cheapness than quality. By recognizing quality, and thus offering the possibility of a better price for better products, an incentive is furnished the manufacturer, which is lacking at the present time. One phase of the subject to be mentioned is its legal side. Definite requirements for brick and similar products are necessary, in order that legal stipulations concerning quality may possess a well-defined basis.

These facts have been realized by the Committee on Building Brick of the American Society for Testing Materials, and in their report of 1913† four classes of bricks are recognized, with the following limits for crushing strength and absorption:

Class A—Vitrified brick. Average compressive strength not less than 5,000 pounds per square inch; average absorption not more than 5 per cent.

Class B—Hard-burned brick. Average compressive strength 3,500-5,000 pounds per square inch; average absorption not more than 12 per cent.

Class C—Common brick. Average compressive strength 2,000-3,500 pounds per square inch; average absorption not more than 18 per cent.

Class D—Common brick, seconds, not to be used in exposed work. Average compressive strength not less than 1,500 pounds per sq. in. No limits are set as regards absorption.

Tests of Brick from Several Districts

In co-operation with the above Committee, twelve testing laboratories undertook to test brick collected from ten States. It was found in this work that the absorption values could not be used as a means of differentiating the different classes of brick; hence, these were discarded for this purpose. The general averages obtained for the compressive strength were as follows: Class A, 8,493; Class B, 4,171; Class C, 2,791; Class D, 1,762.

From extensive tests carried on at the Department of Experimental Engineering of the University of Minnesota, on brick made in that State, the average values for the different classes were found to be: Class A, 5,663; Class B, 4,762;

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*Trans. Am. Cer. Soc. XII, p. 564

†Am. Soc. Testing Materials, XIII, page 286.

Class C, 2,584; Class D, 1,739; Class E (strengths below class D), 907.

The results obtained by Prof. Ira A. Woolson, in connection with brick from the Hudson River district used so largely in New York City, indicate a mean compressive strength of 3,943 pounds per square inch.

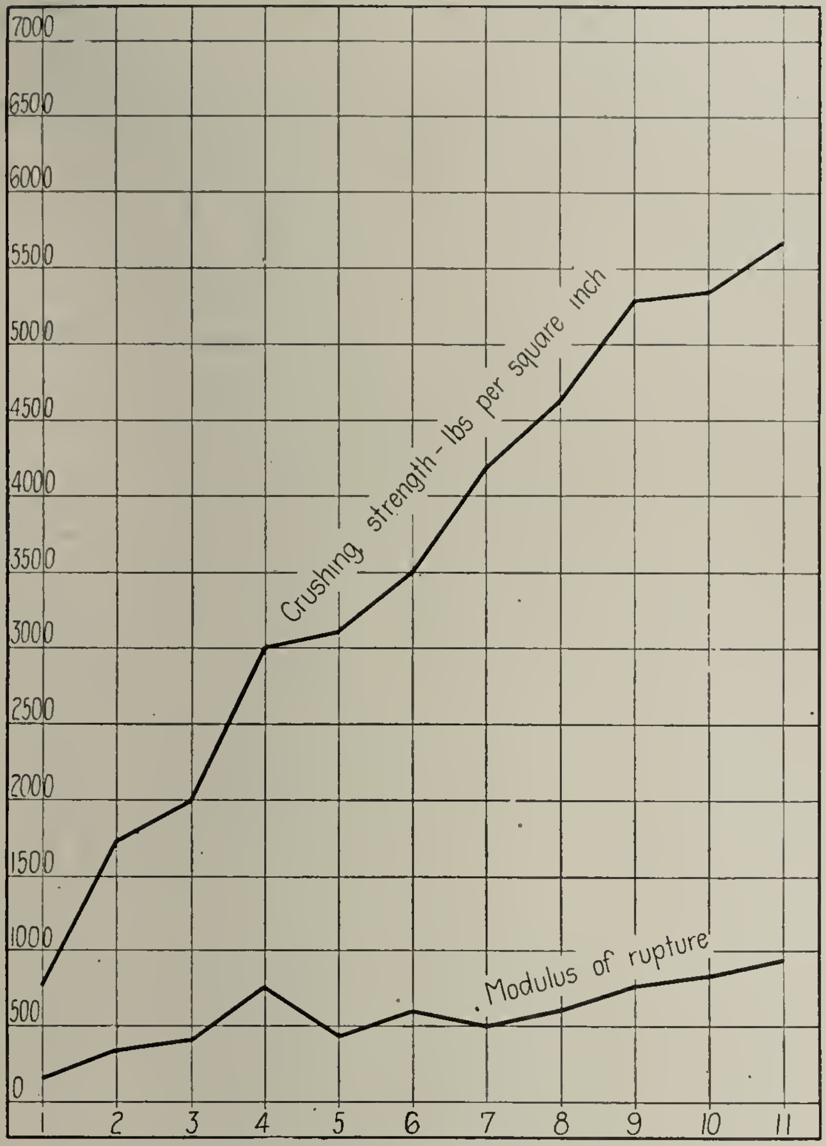


Fig. 2. Curves of Tests for Compressive Strength. Modulus of Rupture Relation

Tests made by the Bureau of Standards on brick obtained from 20 brick yards in the Chicago district showed an average crushing strength of 2,156 pounds per square inch and an absorption of 23.79 per cent.

A series of brick burned to different temperatures, tested by the same Bureau, collected from a typical plant in the Pittsburgh district, showed a very consistent relation between porosity and crushing strength which could be expressed by the empirical equation, $y = 6{,}400 - 38.7.5\,x - 16.25\,x^2$, where $y =$ crushing strength in pounds per square inch, and $x =$ per cent absorption.

Transverse Strength

It is common practice in the testing of brick to make both the transverse and crushing-strength tests. Undoubtedly, both of them are of value, but in some respects the transverse test is superior, inasmuch as brick in actual use are subjected to transverse stresses in a very large measure. This test brings out the effect of inferior structure very sharply. It would seem that the transverse test would make possible a sharper differentiation of the various classes of brick. There is, however, no direct connection between crushing strength and the modulus of rupture. Brick with a high compressive strength may show a low modulus of rupture, and vice versa, as has been shown to be the case in the work of Prof. Ira H. Woolson in connection with building brick from New Jersey.

The general average values obtained in the transverse test by the laboratories co-operating with the Committee on Brick Tests of the American Society for Testing Materials were found to be as follows: Class A, modulus of rupture, 1,482; Class B, 668; Class C, 621; Class D, 469. The results obtained in the test series of the Department of Experimental Engineering, University of Minnesota differentiated the different grades of brick in the following manner: Class A, 1,253; Class B, 926; Class C, 576; Class D, 403. A comparison between the modulus of rupture and the compressive strength is shown in the diagram of Fig. 2, presenting results obtained by Prof. Woolson on brick from the New York district. It will be noted that the rate of increase in crushing strength is very much more rapid than that for the modulus of rupture and that, hence, no well defined relation exists between the two factors.

Modulus of Elasticity

Owing to the characteristic rigid structure of brick and stone materials, the elastic limit is not always observable on single specimens, though it may be observed on built-up structures. The Pittsburgh laboratory of the Bureau of Standards undertook the study of the intrinsic modulus of elasticity of a number of typical clays. The size of the specimens was 3½ in. x 3½ in. x 12 in., the ends of which were ground parallel. In the majority of the stress-strain curves the inflexion point of the elastic limit failed to appear, due in part to the structure planes caused by the auger machine and in part to flexure of the column. The deformation, as expected, was found to be a function of the porosity, as is shown in Fig. 3, in which the modulus of elasticity is plotted against the porosity. In the case of the shales it seems to be characteristic that the modulus increases gradually from the point of maximum porosity, remains practically constant during the later interval of vitrification and rises rapidly as complete vitrification is approached.

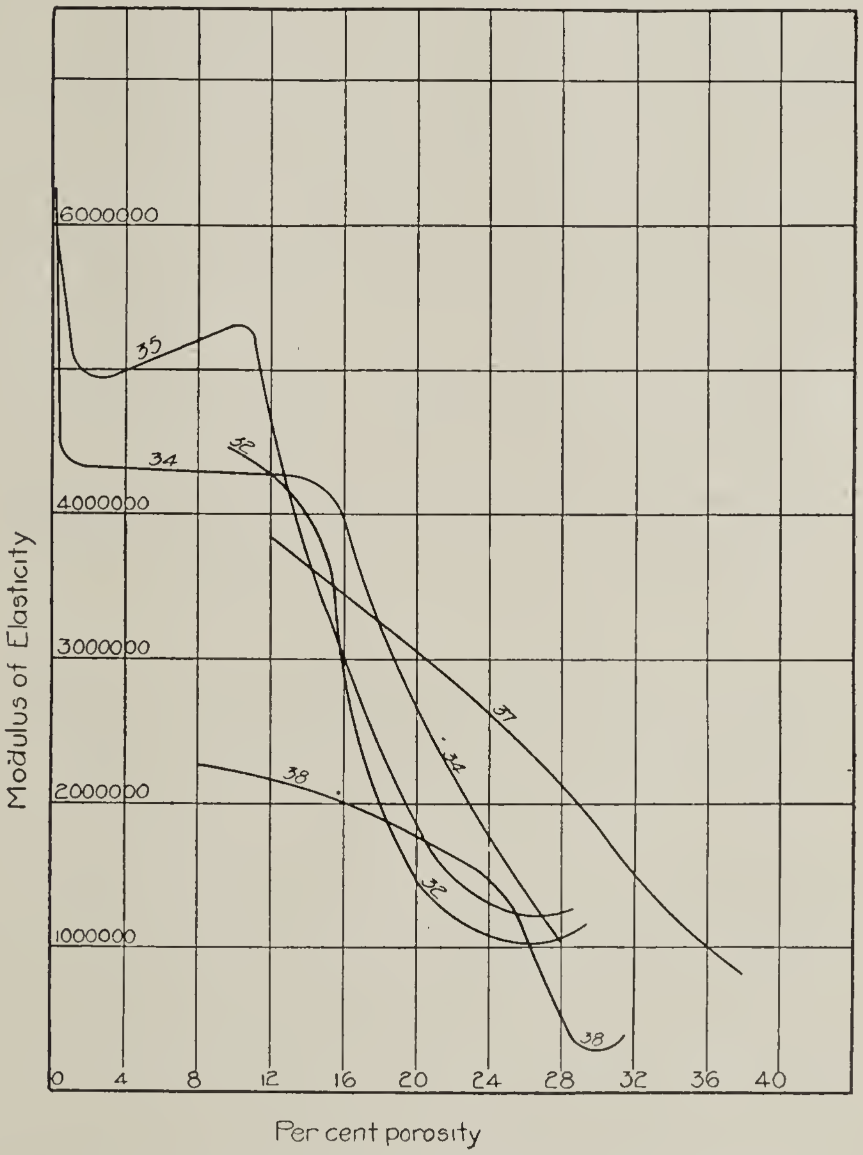


Fig. 3. Variation of Modulus of Elasticity with Porosity. Bureau of Standards Tests

(To be Continued)

"Buying Well"

Actual Happenings in Clay Plants Where the "Economy of Buying Well" Has Been Convincingly Demonstrated

EDITOR'S NOTE: The man who depends upon his ability to quote a lower price than his competitor, and who does not try to sell on quality, may be forgiven if he carries his sales doctrine into his purchasing. Yet he cannot continue to undersell the market unless his manufacturing cost is below the average of his competition.

The man with the lowest cost, however, is the man who sees far enough ahead to "Buy Well" when it comes to machinery and equipment. He does not sacrifice capacity to a misplaced economy in buying supplies—or men. He cuts into his overhead charges by crowding his production, and knows that this cannot be done with "cheap" help, nor with poor machinery.

YOUR experience in purchasing machinery and equipment is, in all probability, entirely different from that of other clay plant owners. For that reason, it will interest them—just as the "stories" told below have interest for you.

Won't you contribute your share to a great movement for the betterment of the industry, by writing us a letter on the subject of "Buying Well"?

The Story of One Machinery Manufacturer Who Met the Rapid Rise in Steel by Using a Poorer Quality of Metal

In order that no injustice may be done by careless editing, the following story is printed just as it came to this office.

"Just a personal illustration of how the machinery people lose business. We use an auger every thirty days. We buy from one company and have been getting fair service. They cost us $60 each at the point of shipment. Recently we received one that lasted six days—*I kicked.* The next one lasted us three days, and now we are up a stump, as we only got nine days' use where we should have gotten sixty, and our reserve is gone.

"The trouble is that steel, iron and alloys have gone up and they made an attempt to cheapen. I examined the material and it was a shame to send it out of the factory.

"Now I am having a pattern rushed thru, and will have the augers made right here. That means a loss of $720 worth of business to the machinery people, each year, and on one item alone—nice, easy business, at that—mail orders."

The Story of a Machinery Manufacturer Who Anticipated the Forehandedness of a Brick Man

Down in Ohio, there is a manufacturer of face-brick who has "run a shoestring into a fortune." From a small beginning, he now owns four "going" plants, and the direction of their "going" is toward proper expansion, rather than the curtailment of output—but that is another story.

It is related of this brickmaker that, having negotiated with a machinery man for what might well be called "a whale of a cutter," he found on his desk, one rainy Tuesday morning, the specifications of that cutter, and a price that was something above a thousand dollars.

Sitting beside the desk was one of the officers of the machinery concern. After some discussion, the brick man asked whether there was any point in the makeup of that machine, where the use of a better grade of steel, or a better type of bearings, or anything else that could be done to make the machine more efficient, more stable, more apt to run year in and year out, with but little chance of wearing out or breaking down.

The answer came very promptly. It was that everything which the machinery man believed could profitably be put into the machine—that is, profitably to the buyer—had been included. "We have dealt with you before," the machinery man said, "and we made up the specifications accordingly. We might gold-plate the frame, or put platinum wires where steel ones are shown, but that would simply add to the expense without offering any chance of longer life or greater service. I am willing to tell you," he continued, "that these specifications were made up with *maximum efficiency* in view, and that the price we have set upon the machine made in accordance with them is about one hundred and fifty dollars more than we would ask for our "standard" specification for a cutter of this type. It is a very different matter—this dealing with a man who wants the best, and is satisfied to pay for it—and dealing with one who tells us that we must sharpen our pencil if we hope to get the order."

Now this anecdote leads to another—one that had to do with the same men, but on a former transaction, and may well be called—

The Story of a Brick Man Who Appealed to a Machinery Man's Conscience and Pointed a Way to Improvement

Some manufacturers of burned clay products, as we all know, run their machinery "harder" than others. It may be due to the obstinacy of the clay, or to the demands of a well organized sales department, which cannot understand why a thirty-thousand-a-day plant cannot turn out forty thousand first quality brick six days in every week without buying more machinery.

The latter condition confronted one manufacturer of face-brick, and as a consequence, the machinery on that plant was strained to the uttermost, and it was found that no less than four times, inside of two years, a shaft in one machine gave way and tied up the plant.

The brick manufacturer called in the machinery man who had furnished the machine that broke down in this way, and, instead of storming around and calling him names—or threatening to try some other manufacturer of clayworking machinery—asked him if he thought it a creditable thing for his machinery to "act up" in that manner.

The machinery man did not stop to make any excuses, nor did he waste any time pointing out how badly the machine was being treated. He simply, as the phrase has it, "acknowledged the corn."

As a result, the size of the shaft on that model was increased, and the machine was "balanced" so that, as it wore down, the wear was uniform thruout every part.

And the clay products industry, as a whole, gained a great profit thru the pointed inquiry of a man who understood the "economy of buying well."

The Story of a Man Who Paid for Two Boilers and Found $7.50 in His Junk Pile

In order to "save" a little money, a certain clayworker purchased a second-hand boiler. It *looked* all right and acted as good as it looked for about two months, when it began to leak—not in one, but in several places.

It was partially retubed, and other repairs amounting to about $150 were made to it. But it still leaked!

Finally it was thrown out, after less than three months' use (?) and a new one put in.

A careful calculation as to the amount of money lost thru reduced output during that last month, showed that this clayworker had paid more than double the price of a new boiler, altho he could find but one in his inventory. There was a gain, however, of about $7.50 in the exact value of his junk pile.

Short Course in Ceramics at Urbana

Announcement is made of a short course in ceramics, to be held at the University of Illinois, Urbana, Ill., January 10 to 22, 1916. This course is open to anyone who is directly or indirectly interested in the clayworking industry. A common school education is all that is required to understand and absorb the work of the course.

No fee is charged. The rates at which board may be obtained in Champaign or Urbana are very reasonable. That, and the railroad fare are the only expenditures you will have to make. The returns, in knowledge, will be as great as you wish to make them.

The annual short course in ceramics at Urbana is designed to meet the requirements of practical men. It will deal with the principles underlying the work of managers, superintendents, foremen, burners and others who may be concerned in the manufacture of burned clay products. The processes of clay testing, preparation, molding, drying, burning and decorating will be treated. The instruction will consist of lectures, laboratory work, practice in firing kilns and *informal gatherings for question asking.*

Ample apparatus such as pyrometers, gas analysis apparatus, draft gauges, anemometers, shrinkage calipers, voltmeters, balances, etc., will be provided.

Persons desirous of testing their own clays may send samples of their materials to the ceramics laboratory in time to be used by them in their laboratory work. Not less than ten pounds of clay should be forwarded, *preferably in the condition that it would be delivered to the pug-mill or molding machine at your plant.*

The staff of instructors includes A. V. Bleininger, a report of whose research work in clay products is now being published in "Brick and Clay Record;" Homer F. Staley, of the Iowa State College, at Ames; R. K. Hursh, B. S. Radcliffe, A. E. Williams and R. R. Danielson.

Those wishing to attend this short course should write *at once* to the Department of Ceramic Engineering, University of Illinois, Urbana, Ill., asking that a place be reserved for them, and indicating, if possible, the subjects in which they are particularly interested. Programs will be sent upon request to any manager or superintendent of a clayworking plant who wishes to interest his foremen, burners, or others in his working force. They will also be sent to individuals who enclose a two-cent stamp with their request. *Better write today, while it is fresh in your mind.*

New Poston Paving Brick Plant in Illinois

With the incorporation of the Poston Paving Brick Company, of Springfield, a new $50,000 plant has been added to Illinois' already long list of clayworking establishments, by a Hoosier paving-brick manufacturer of recent Dixie Highway fame.

The new company, which will engage in the manufacture of building brick and pavers, has closed a deal whereby it acquires approximately five acres of land at the eastern end of South Grand Avenue, Springfield, about one-half mile east of the southeast corner of the city limits at the junction of the Baltimore and Ohio Southwestern railroad and the Illinois Traction Belt Line.

The company expects to begin work at once on the erection of twelve thirty-foot kilns of modern construction. It is expected to have the plant completed and in operation within ninety days.

According to I. G. Poston, president of the new company, the plant will have a daily capacity of 50,000 building brick or 25,000 pavers, and will give employment to at least sixty-five men. The plant will be electrically operated.

The company has also secured a long time option on five acres of shale land located about three miles south of the site secured for the plant and along the line of the Illinois Traction Belt Railway.

The incorporators are I. G. Poston, his son, Emmett Poston, and J. C. Hale, all of Martinsville, Ind.

Omaha Automobile Club Endorses Brick Paving

At the annual meeting of the Omaha (Neb.) Automobile Club held at the Fontenelle Hotel on December 7, vitrified brick paving on a concrete base was given an enthusiastic endorsement. The club members' unanimous approval of this type of paving was brought out in a discussion of the kind of paving to be recommended if the $2,000,000 bond issue is authorized by the city's voters. The West Dodge Street Road was pointed out as a perfect example of good brick paving. It has been down for twenty-two years without any repairs, and today is practically as good as new.

Mexico (Mo.) Fire-Brick Company Re-Organizes

The A. P. Green Fire Brick Company of Mexico, Mo., is the successor to the Mexico Brick and Fire Clay Company, according to a recent announcement, there being no change in the ownership or personnel of the officers.

Spokane Refractories Plant Doubles Capacity

The American Fire Brick Company, Spokane, Wash., has begun improvements at its plant which, when finished, will double its capacity. This move has come as a result of a steady increase in orders for building material in the Far West, according to Charles P. Oudin, manager. The new equipment consists of a continuous kiln, ten more tunnels on the drier and two-hundred and fifty drier cars. The company is also electrifying its three-quarter mile railroad, which is called the Mica Peak and Southern. The largest contract on hand covers all of the hollow-tile to be used in the St. Mary's hospital at Walla Walla, Wash.

Monmouth Plant Employes Give Benefit Supper

Nearly fifty members of the Sick and Accident Benefit Association of the Monmouth (Ill.) Clay Manufacturing Company and their families attended the benefit entertainment and supper given on December 1st, the proceeds of which were placed in the treasury of the association.

President Fred Mann called the assemblage to order and introduced C. F. Buck as the first speaker, who told of the history of the association and its objects to protect those so unfortunate as to become sick or disabled at their work. He also told those present of the many difficulties of the company during recent years and the bright future to which it looks under the new management. Following Mr. Buck, were other speakers and then a substantial meal was served, followed by a dance.

The association was formed in February, 1904, and from the very beginning met with favor. Despite the fact that the plant has been closed for a long period of time, there are fifty-four members of good standing in the association and more are being added as the benefits are explained by the officers. The present officers of the society are Fred Mann, president; R. W. Johnson, secretary; and A. W. Gates, treasurer.

First Terra Cotta Plant in Utah to be Built Soon

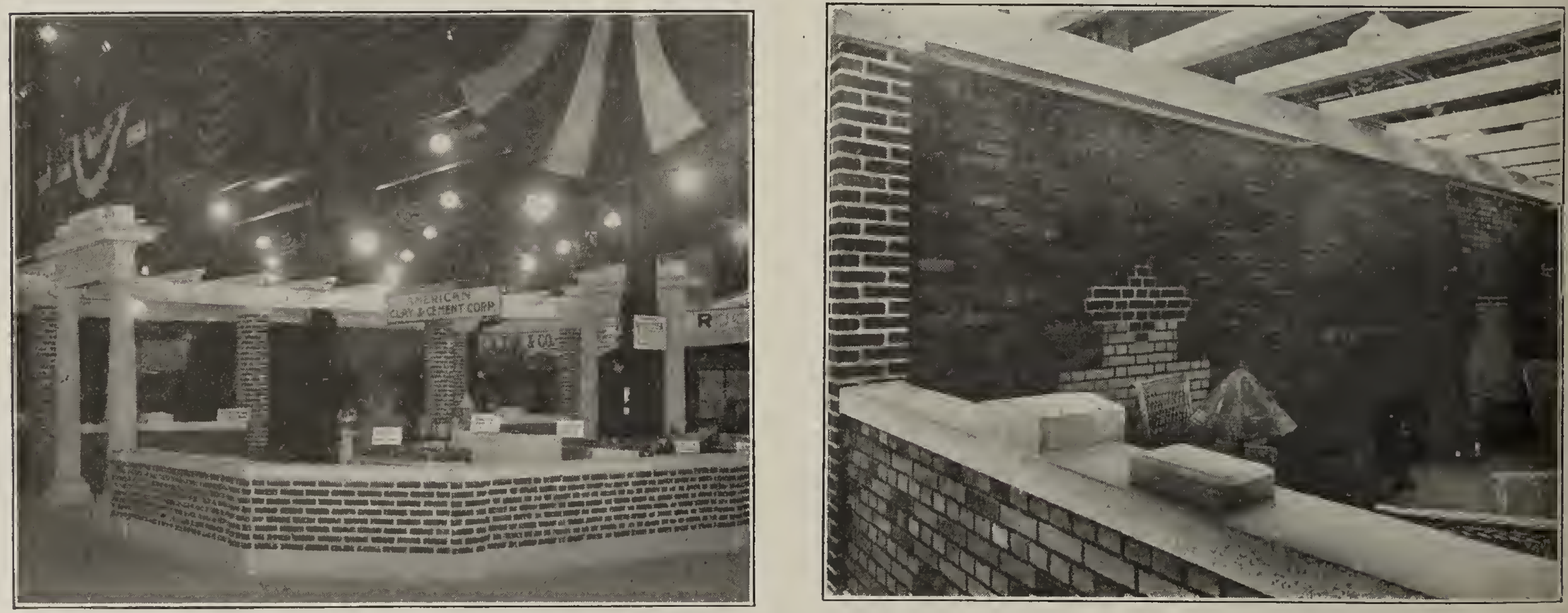
The United States Fire Clay Company, Salt Lake, Utah —a four months' old concern—has increased its capital stock from $100,000 to $500,000 and plans are now being drawn for the enlargement of the company's plant at Murray, Utah. Work on the new additions will be started within sixty days, according to a statement given out by J. A. Spiker, general manager of the company, and the enlarged plant will be in full operation by July or August, 1916, employing about two hundred and fifty men.

Terra cotta, tile and sewer-pipe will be manufactured in the new additions. This will be the first time that terra cotta has been manufactured in Utah, it is claimed. The company will market its products in the territory tributary to Salt Lake, and will even go as far as the Pacific coast.

A ceramic engineer of wide experience, who comes to Salt Lake from St. Louis, has been employed to have charge of the plant, the new additions being built under his direction. The United States Fire Clay Company began operations in September last, and found such a ready sale for its product that within sixty days plans were being considered for its extension on a large scale.

Tampering with Cleveland's Building Code

Building material men and members of the various organizations in Cleveland, Ohio, are incensed at the action of councilmen who have been charged with tampering with the building code. It is claimed by experts that these individuals, ignorant of the city's needs, and careless of its welfare, have taken action that may result in complete disorganization. As it is, Virgil D. Allen, building commissioner, has tendered his resignation, to take effect the first of the year. Mr. Allen plans to open engineering offices in Cleveland with Irwin S. Osborn. The latest amendment, to permit the remodelling of buildings outside the fire-limits, has aroused a storm of protest from all sides. "This latest amendment," says Floyd E. Waite, counsel for the Society Advocating Fire Elimination, "is ambiguous, involved, and hardly is possible to understand. It concludes with a phrase that changes in buildings shall be permitted, provided 'they do not prolong the life of such buildings.' It is impossible to conceive of any improvement to a building that will not prolong its life." Secretary Roberts, of the Builders' Exchange, says: "Continual tampering with the building code, to satisfy constituents of councilmen, will result in its complete demoralization."



AN EFFECTIVE "BUILD WITH BRICK" EXHIBIT AT THE ROCHESTER (N. Y.) INDUSTRIAL EXPOSITION

With the Willingness to Spend Some Real Money on a Booth That Would Do Justice to the Material Which It is Selling, the American Clay and Cement Corporation Presented a Worth-While "Build With Brick" Exhibit at the Annual Rochester Industrial Exposition, Held During the Past Autumn. The Illustration at the Left is a General View of the Booth, Showing Its Large Proportions, While That on the Right is Indicative of Some Very Careful Designing and a Creditable Execution

The Salesmanager

A Department Devoted to the Marketing of Burned Clay Products—Particularly Those That Enter Into Building and Road Construction, Sewers and Farm Drainage

CONTRIBUTIONS TO THIS DEPARTMENT are solicited and will be printed with or without the name of the contributor, as he may wish. A year's subscription to this magazine or a check for two dollars will be sent for each item that is accepted.

TEN YEARS AGO, the face-brick salesman who was confronted by an inferior brick at a lower price than the one he was offering, knew, or felt that he knew, the superiority of his own brick and the weak points of the lower-priced article. As a rule, the inferiority of the other brick lay in its tendency to absorb moisture.

Without attempting to go into any details on this point, let us say that the salesman *believed* (and put that belief across) that a face-brick which absorbed any great amount of water would not stay clean, and that a brick which was impervious would be "as bright and new, ten years from today ———" you know the rest of that speech.

Then, the water-cooler was the salesman's best friend, even tho he had to go in a barroom to find it. With a glass of water, and a good working knowledge of the action of different kinds of presses on different clays, he could generally demonstrate the fact that his brick did not absorb all the drinking water in the place, while the other fellow's brick at least tried to.

And for some evidently good reason, the architectural profession—and thru it, the builders—accepted as an indisputable theory, the fact that if a brick did not absorb water poured upon its face, it would stay clean, and preserve its color in any climate, and under all conditions. Obversely, if it did take in the water that was poured upon it, it was destined to grow dim and dingy, to lose its individuality—to grow old *ungracefully,* and to come in time to be a disgrace to the face-brick fraternity.

What does the same salesman say, today, when the architect or builder takes up a rough-surfaced brick, and asks if it will stay clean? What does he say if the architect or builder wants to use the cooler and the drinking glass to see if the brick will "take water"?

Face-brick salesmen are just as resourceful today as then—what has replaced the water test as a demonstration of superiority? Something surely, *for selling face-brick is not "taking orders"—it is getting the full price for what you are selling, even in the face of a cut-price competition.*

Billboarding a Trade-Marked Drain Tile

The value of a trade-mark in marketing a commodity has been firmly established by the success of innumerable advertising campaigns of both large and small proportions. There are some trade-marks and trade-names in this country whose value cuts no mean figure in the annual inventory of many large business houses. True, the worth of these trade-marks has not grown unassisted. Millions of dollars have been invested, in many instances, to make them a by-word in the household or in the shops.

It has been witnessed what promotion will do for face-brick, some of the names of which are as familiar to us as those of our friends. Now comes a manufacturer of drain-tile with a trade-marked product who reports that billboard advertising has been a success in his business.

During 1914 the Platt Company of Van Meter, Ia., had three large signs advertising "Platco" drain-tile placed at three different points on railroads where a heavy traffic made them an unusually good investment. The space on these billboards was rented from an advertising company, the total cost being nine dollars a month. Mr. Platt reports several inquiries directed to "Platco," Van Meter, Ia., the interested parties having forgotten the name of the company that manufactured the drain-tile but retained within their memory the trade-name.

The signs were taken down during the present year because the company believes that they will be of still greater service on the main highways of the state. The automobile has made the farmer independent of steam and electric lines and has diverted his route of travel to the highways which he traverses with greater frequency than he did the railroad or interurban rights-of-way where he had to pay his fare.

Owing to the fact that the Platt Company, in common with most of the Iowa drain-tile plants, was behind with its orders during the greater part of the present year, the billboards have not been re-erected at their new locations. Mr. Platt states that next year will see an increased number of billboards advertising "Platco" drain-tile scattered along Iowa's roads. In addition to billboards, he has used the metal, blue-and-white "Tile Your Farm" signs, and these have also proved helpful in directing prospects his way.

The Value of Monthly Sales Letters

If you sell all, or any considerable part of your product thru dealers, your distribution is affected by the impression your personality has made on every man connected with the dealers' office and sales forces.

It is not enough that you know a dealer—nor that you have known him for years. It is not enough that, when you go to his city, or he to yours, personal visits are exchanged. Your goods will move in exact proportion to the amount of interest that is taken in them by the average of the employes in the dealer's office.

A dealer can talk himself blue in the face, telling his salesmen that they must "push" this, or that, or some other product; but the salesmen will, or will not, make the handling of that product profitable, in a ratio that comes close to reflecting their individual opinions of the manufacturer.

For that reason, if no other, monthly sales letters, giving helpful suggestions as to the best way to present the merits of the article you make, and something about the ease of securing "repeat" orders (which is the salesman's "velvet") because your goods "make good" and because your deliveries are prompt—a letter that the "boss" is apt to hand to the "boys"—will start them off, once a month (if you are capable of producing a letter that often) with renewed faith in your product and a better opinion of you, personally.

Write your letter in a way that the salesmen will see it is meant for them. Write it in a friendly way—remember that, in selling your goods, they are acting as *your salesmen,* and only drawing pay when they make a sale.

Co-operate with every man who forms a link in the chain that binds you to the ultimate consumer. But be sure that you *feel* the spirit of co-operation before you start to write anything about it.

Motor Car Helps Drain-Tile Salesmen

The largest drain-tile manufacturer in the United States has equipped his salesmen with roadsters and finds that it is proving of great help to the men in covering their territory.

The Mason City (Ia.) Brick and Tile Company markets its products almost exclusively thru dealers. When a salesman reaches a town in which his company has a representative, he immediately calls upon him to learn just what the situation is in that town and the surrounding country, and whether or not there are any live prospects which the dealer has not been able to sign up, but who might be won over if both he and the salesman were to make a call. The salesman, having his automobile handy, invites the dealer to accompany him and, armed with a list compiled by the dealer, they both canvass the territory.

The dealer is a good introduction for the salesman. He knows every farmer by his first name. The salesman is not handicapped by a prejudice in his prospect's mind, which is usually stacked up against a stranger. And then there is less chance for a telling argument being overlooked when both the salesman and the dealer talk with the farmer, the dual bombardment of questions and argument being more destructive of opposition than might otherwise be the case.

In towns where the dealer has no live prospects to work upon, the salesman in his roadster can do some missionary work on the surrounding farms, making the acquaintance of the farmers and leaving good literature on tile drainage or permanent farm buildings for the farmer to read in his leisure moments. That the dealer accompany the salesman on these trips is not vitally important. "However," says B. C. Keeler, secretary of the company, "we are careful not to spend too much time on this pioneer work, as it is expensive. We try to keep the salesmen busy by having them do some of this work, which ofttimes proves very fruitful."

The Importance of Association Work

The plant manager who has charge of sales and who takes the attitude that he is being benefited by the work of state and national associations of manufacturers working in the same field as himself, and that he is receiving more than his rightful share of the good that these associations are doing, plus the amount he is saving by not contributing to the cost of that work, is fooling himself.

With few exceptions, these associations are doing very little in the way of general publicity for the products made by their membership. Their work is constructive, but along other lines. Human nature is the same the world over. The promotion work is largely done along lines that will bring results to those who are contributing to the expense and not to those who are waiting for the plums to drop from the trees that are being cultivated by co-operation.

It is only natural for a man who is called upon to contribute to a fund for any specific purpose, to ask himself how much good he is going to get from the investment. He is perfectly willing that his associates, who also contribute their money and their time to the work, shall receive a benefit that is equal to his own. But he will try, if he can, to prevent any great amount of the good that is being done, from reaching the man who selfishly sits at home, waiting for someone to bring him prosperity on a silver platter.

If in your state there is an association of clayworkers, you will serve your own interests better by attending their convention, than by sitting home and trusting that those who do attend are any more generous than you are, or that they will work unselfishly to put money in your pocket.

Getting the First Installation

The farmer is probably the most conservative of human beings. He isn't convinced until every argument has been exhausted—and sometimes not then.

One of the leading farm implement manufacturers recently said that it is harder to persuade a farmer to begin using a certain brand of implement than it would be to sell goods to anybody else; but that, having once been started along this line, the farmer will "stick" faster than most other customers.

There is a suggestion here for the manufacturer of hollow building tile, and of drain-tile, who has been having a hard time breaking into the farm field. He knows that there are many farms in his section which ought to be drained, and that farm buildings, on account of inadequate fire protection, should be constructed of fire-safe materials. He knows that his arguments are perfectly sound; yet until the farmers actually respond, he is up against it, and is finding it difficult to break through their wall of indifference.

The big problem here, whether it is realized or not, is to get the *first* installation. Once some individual farmer starts the ball rolling, the others will fall in line fairly easily. Taking a hint from the implement business again, it has been found that when a new implement, like a harvester or a manure-spreader or something of that sort, is to be introduced, the biggest work is done in selling the first one; the other farmers see it in use, get the idea of the advantages it possesses, and promptly buy, too.

So the tile man who is endeavoring to conquer this trade field should devote all his efforts to interesting some particular farmer, and not simply farmers in general. He should constantly "work" on him, and when he finally gets his order, the material should be installed with a proper amount of publicity. Announcements of what farmers are doing in the way of up-to-date methods is always good news to the local papers, and additional methods of circulating the facts can be used, such as form letters to other farmers on the list. It is desirable that their attention be secured while the work of installation is going on, so that they can see just how the drainage system is being put in or the new buildings constructed.

Then, with proper use of the experience of this farmer with the drainage system, or new buildings, the tile salesman can get the immediate attention and interest of other agriculturists, who, without some specific local example to point to, would prove the hardest kind of prospects to turn into signed orders.

The Superintendent

A Department Devoted to the Plant, Beginning at the Pit or Mine and Ending With the Loading Track, with Comments Made by the Way

A YEAR'S SUBSCRIPTION to "Brick and Clay Record" will be given every employe of a clayworking plant who submits any new and helpful idea that is accepted for publication in this department. Pencil sketches, when necessary to explain the proposition, will be redrawn at our expense, and the name of the author will be published unless the suggestion is accompanied by a request that the name be withheld.

Some Simple Facts Concerning Electricity Which Every Plant Superintendent Should Know

Electricity, according to Prof. Silvanus P. Thompson, is the name given to an invisible agent known to us only by the effects which it produces, and in many ways its behavior resembles that of an incompressible liquid, or that of a highly-attenuated and weightless gas. It is neither matter nor energy, yet it apparently can be associated or combined with matter, and energy can be spent in moving it. Under pressure or in motion it represents energy, the same as air or water. Always constant in quantity, it can never be created or destroyed. There is no flow of water without a difference of levels, and so there is no manifestation of electric action without a difference of electrical pressure. Electricity in quantity without pressure is useless. In mechanics a pressure is necessary to produce a current of air or water. In electricity, an electromotive force is necessary to produce a current. Mechanical phenomena are measured in pounds, feet or gallons. Electrical phenomena are measured in units of their own.

The UNIT of electrical pressure is the VOLT. It is analogous to steam pressure. It is the abbreviation of the name of Volta, in honor of Count Alessandro Volta, born at Como, Italy, February 18, 1745.

The UNIT of electrical current is the AMPERE. It is a unit of the rate of flow or stream. It is in honor of Andre Marie Ampere, the founder of the science of electro-dynamics, born at Lyons, France, January 22, 1775.

The UNIT of electrical resistance is called the OHM. It is in honor of George Simon Ohm, born at Erlangen, Bavaria, March 16, 1789. He was the discoverer of the fact that the flow of electricity was governed by fixed laws. By Ohm's law we define and measure electromotive force, strength of current and resistance.

OHM'S LAW connects the three units, volt, ohm and ampere. The current in any circuit is directly proportional to the electromotive force, and inversely proportional to the resistance. The units are so chosen that when there is one ohm resistance in circuit an electromotive force of one volt produces a current of one ampere.

Ohm's Law is:

$$\text{Current in amperes} = \frac{\text{Electromotive force in volts}}{\text{Resistance in ohms}}$$

Abbreviated into: C for current, E for volts and R for resistance

$$1.\ C = \frac{E}{R} \qquad 2.\ E = CR \qquad 3.\ R = \frac{E}{C}$$

(1.) A dynamo with an electromotive force of 60 volts will send thru a resistance of 5 ohms a current of 12 amperes.

$$C = \frac{60}{5} = 12 \text{ amperes}$$

(2.) A dynamo to send a current of 2 amperes thru a resistance of 25 ohms must have an electromotive force of 50 volts.

$$E = 2 \times 25 = 50 \text{ volts}$$

(3.) The resistance of a circuit when an electromotive of 800 volts sents a current of 10 amperes thru it will be 80 ohms.

$$R = \frac{800}{10} = 80 \text{ ohms}$$

The WATT is the unit of power, and is equivalent to one ampere multiplied by one volt, or C × E = watt. A KILOWATT is equivalent to 1,000 watts. The mechanical horsepower is equal to 746 watts or, for approximate computations, is taken as 750 watts, equivalent to ¾ of a kilowatt.

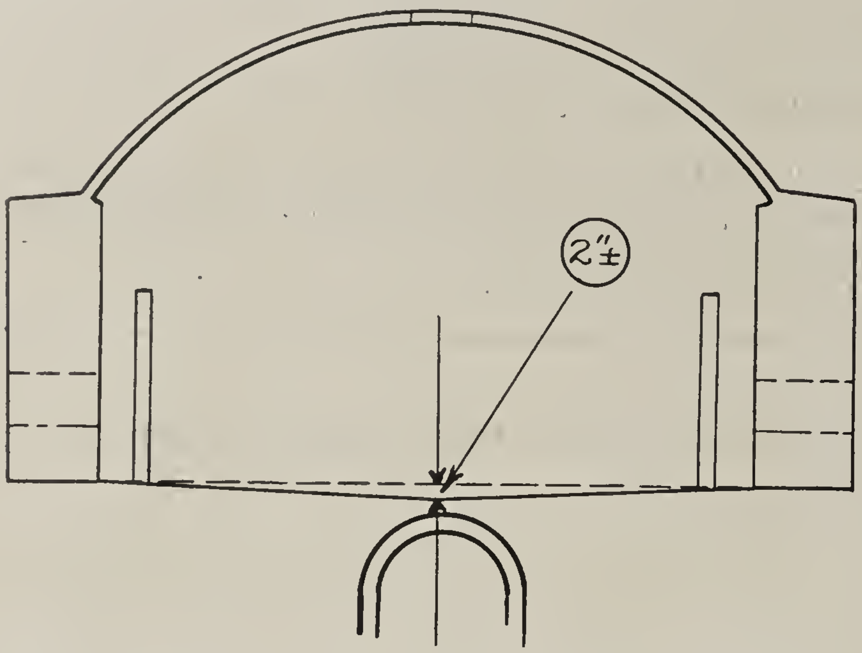
Depressed Kiln Centers Save Ware and Bagwalls

"One idea has saved me thousands of dollars," said a New York brickmaker recently in discussing the subject of kiln construction.

"An item of no mean consideration in the maintenance cost of kilns comes from damaged bagwalls due to the brick rolling toward that part of the kiln. But what is of still greater importance is the amount of ware spoiled when this occurs. I have found that by depressing my kiln centers from one and one-half to two inches in a thirty-foot round, down-draft kiln, much of the trouble, expense and actual loss due to damaged bagwalls, and distorted and melted brick, is obviated. Where this is done, when the brick begin to roll, the tendency is to lean toward the center of the kiln, thus keeping the setting intact.

"This simple idea has saved me a large sum of money in the time that I have made use of it, in repairs to bagwalls and in a smaller number of culls."

A cross-section of a round, down-draft kiln with a depressed center in exaggerated proportions is shown in the accompanying illustration. This idea can be made to apply to rectangular equally as well as to round kilns.



Cover Steam Pipes to Save Coal

One reason for coal costs in the power plant of a clay works being higher than they should be, is found in insufficient covering on steam connections. The proper insulation of steam pipes is important. For instance, in one industrial establishment in a main sixty feet long, the steam was found to contain thirty-one per cent of moisture. After covering the pipe with a good heat-insulating material, this percentage was reduced to three and six-tenths.

Among the best of the substances available for this purpose are hair-felt, slag-wood, magnesium and asbestos. Hair-felt, while unexcelled as a non-conductor, quickly chars unless protected from actual contact with the piping, by a wrapping of asbestos paper or other non-burnable material. Slag-wool, on the other hand, is fireproof. A covering compound of which asbestos fibre is the base, enjoys considerable popularity. It has the advantage of being in convenient form to apply, and also may be used over again. Water, obviously, should not be allowed to drip on the covering, as it not only may soften it so as to cause it to drop off, but a wet covering is a very poor retainer of heat.

Cut Down the Water Bill

For plants that are using town or city water, one way to cut costs is to obtain a private source of supply. A company in Dayton, Ohio, recently saved enough in only a few months, after installing its own deep well and pumps, to pay for the equipment.

Not always can water be secured in this way which is as well suited to boiler use or for tempering as the municipal supply, but when the quality is satisfactory, the saving is likely to be considerable. Then, too, with a private supply there is an added security that comes of having an independent source in case of fire.

Deep wells are often pumped by compressed air. The method is known as the air lift. In this, an air line within the well pipe discharges compressed air at the bottom of the well. These air bubbles lift the water with them as they rise to the outlet pipe.

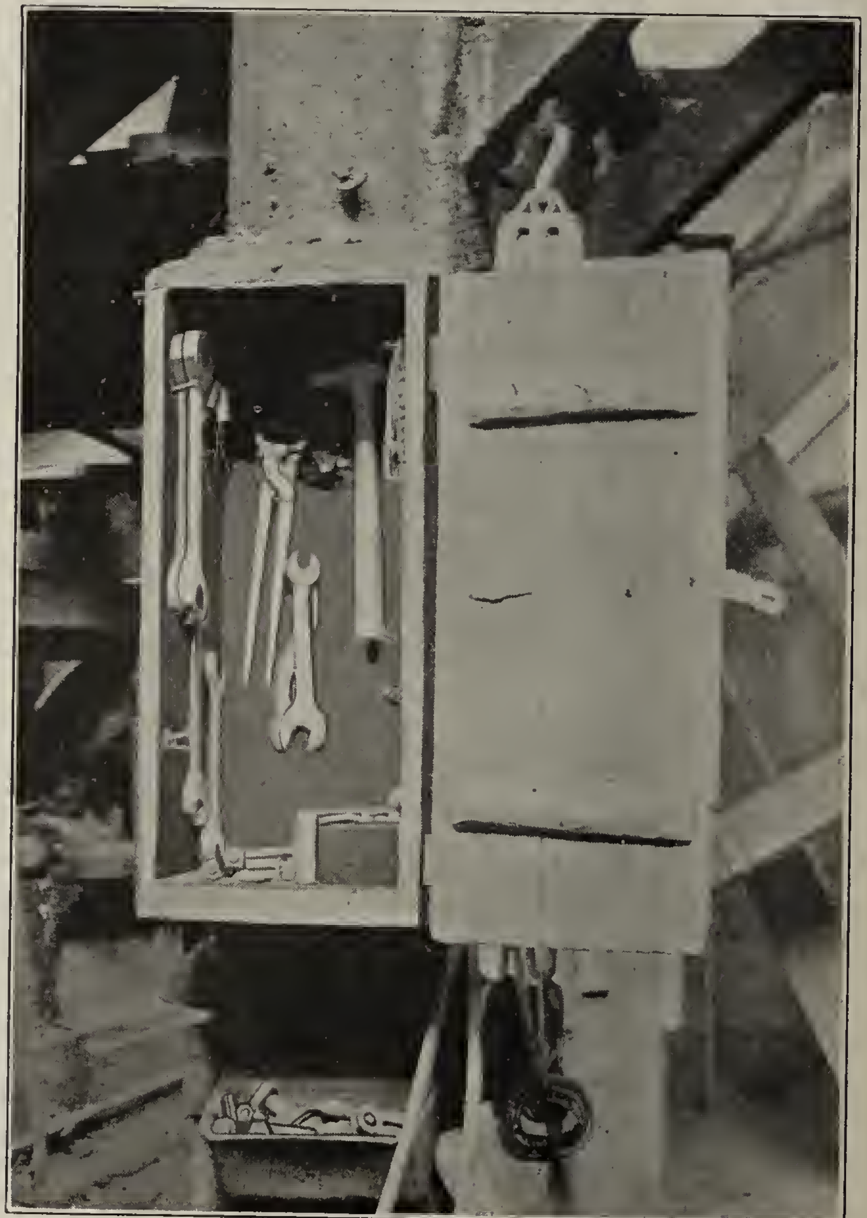
Sands and solids in the water are no detriment with the air lift pump. In fact, the air lift draws them out and thus enlarges the water bearing cavity and so increases the flow of water.

Placing Tool Responsibility

"A few years ago, we were put to considerable expense and annoyance," said a progressive clay plant superintendent recently, "in the matter of lost tools. Somehow or other they would disappear, to turn up months later in the most unlooked-for places."

"Workmen from other departments, needing a certain tool and not having it handy—due in most cases to carelessness in putting it away—would go to another department and borrow that tool, probably without the knowledge of the user, and then forget to return it. In most cases the user would not discover that the tool had been borrowed until he had need for it, and then he did not have it. He was inconvenienced and put to considerable trouble in getting another tool, the men working with him were delayed, and often it was necessary to shut down a machine while the necessary tool was being searched for or another obtained from the storeroom. If our supply of that particular tool happened to be exhausted, then it was necessary to use something less desirable and often unsuited for the purpose, all because one man was careless in not returning the tool he had borrowed.

"We finally decided to put a stop to this sort of thing, and to do so, provided each man who used tools with a cabinet, accompanied by a lock and key. We then made



him responsible for the tools which he used, and if they were borrowed and not returned, or stolen, he was to make them good."

In the accompanying illustration is shown the tool cabinet in use at this particular plant. All annoyance and expense in replacing lost tools have been eliminated by this simple expedient. After a workman has finished using a tool, it is replaced in this cabinet and the door closed. If he should leave his department, the cabinet is locked and he takes the key with him. If a workman in another department has occasion to borrow a tool, the user knows exactly to whom it is loaned, and if not returned, he knows just who to ask for it. It is needless to say that, being responsible for the tools, he is very careful to whom he lends them, and he does not throw them on the floor when he has finished using them, to be kicked under a machine or box, to be uncovered perhaps a year later. A much neater appearance in the machine room is thus obtained and a useless waste is avoided.

The Successor to "Safety First"

"BE CAREFUL—SAFETY FIRST" is a new slogan that is coming into prominence as the successor of the popular, but slightly overdone "Safety First," which had its origin on a certain eastern railroad, but which is now to be found tacked up from coast to coast and from places of great hazard to bank advertising.

The sign shown in the accompanying illustration was found on the door of the machine shop on an Iowa clay plant, issuing a warning to all who enter to be careful in working around the machines.

Iowa manufacturers have organized a mutual insurance company to take care of the state employers' liability act, clay products manufacturers being one division of this organization which has now been in existence a year and a half. A set premium, approximately equal to that assessed by the old line companies for each particular class of risk, is charged and paid in each year by the members.

When an employe is injured and puts in a claim for damages, it is handled by the officials of the mutual casualty company thru the member upon whom the claim is being made.

Being a mutual organization, however, what a member does in the way of eliminating risks and the chances for accident, redounds to his benefit by a lowering of his insurance premium due to a reduction in the number of claims paid out. Thus the sign here shown serves a double purpose, that of keeping the employes physically intact and of lowering the cost of insurance to the clay plant owner, the latter benefit being one that is not obtained thru insurance with old line companies.

News of the Potteries

The E. H. Sebring China Company of Sebring, Ohio, has increased its capital stock from $50,000 to $100,000.

Electrical porcelain concerns are remarkably active for the season of the year and it is expected that business will increase in this line, within the next few months.

The Adamant Porcelain Company, of East Liverpool, Ohio, is enlarging its plant by the addition of two kilns, and is making other improvements.

The Missouri Pottery and Supply Company of St. Louis, Mo., has been incorporated with a capital stock of $2,500, by Paul Reden, Edward J. Blair and Robert E. Mandeville.

The Colonial Pottery Company, at East Liverpool, Ohio, has started the manufacture of a vitreous hotel porcelain, which is an added line for this firm. In the past, the company has only made a semi-porcelain body.

A representative of the Macomb (Ill.) Pottery Works was in Wyoming, Ill., recently, looking at some new clay land with a view toward acquiring it for manufacture of pottery at the Macomb plant.

Stoneware potteries are sharing in the demand, altho prices are not at all satisfactory. Much of this kind of ware is now being exported, the European producers being out of the market.

Between twenty-five and thirty new kilns have been added to the pottery industry within the year and it is rumored that a least one new pottery will be started in the East Liverpool (Ohio) district before the close of 1915.

George Ball, one of the best known pottery men in the vicinity of Trenton, N. J., died recently at his home, 811 Mulberry street, following a lingering illness. He is survived by a widow and five children.

The strike of the "decal" girls, which caused the closing down of five potteries at Sebring, Ohio, and the throwing of more than a thousand work-people out of employment since November 4, has been settled, the employers agreeing to pay a bonus for all extra work done.

At least six new dinner shapes will be shown the trade in January by the potteries in the Ohio and West Virginia territory. This is more than have heretofore been shown at this season of the year. Plain shapes predominate. However, two "fancy" shapes are listed.

On account of the steady and insistent demand for finished ware, none of the potteries in the upper Ohio valley closed Thanksgiving Day—an unusual occurrence in the industry. The general demand for American made ware is the greatest the industry has ever known, and there is every reason to believe that it will continue, at least for another year.

The sanitary pottery manufacturers in the western territory look for a far better trade during the coming year. In the early part of 1915 there was little activity in building, and this condition has been reflected in the sanitary pottery field. These manufacturers express an optimistic view concerning the new year, however, and are making their plans accordingly.

Machinery and Equipment

In This Department We Give Descriptions of Such Machinery and Accessories as Our Advertisers Have to Offer, or Make Such Announcements as Are of Interest to Our Readers

THE REMARKABLE INTEREST aroused among clayworkers by the advent of The Stevenson Company's big 10-foot dry pan—as demonstrated by the large number of inquiries that company received and sales made following the public announcement, is sure to be duplicated by the effective announcement and illustration on the front cover of this magazine of their new 9-foot Twin-Frame Wet Pan. In fact, so manifest are its advantages over the smaller and single machines, and so important, that tho but recently placed on the market, a large number have been sold. Whenever two or more wet pans are needed, and the lay-out will admit of the use of two in conjunction, the Twins are always selected.

This is the largest wet pan on the market today, and consequently has the greatest daily capacity. One man can operate the two, and one elevator can take care of their output with very little additional power for driving them.

All new plants receiving Stevenson's equipment at the present time, are getting this big Twin and will get results. It would be the part of wisdom to look into the merits of this new machine. Write The Stevenson Company, Wellsville, Ohio, for description and price.

Historic Sketch of the Late James M. Dodge

James Mapes Dodge, Chairman of the Board of the Link-Belt Company, died at his home in Philadelphia, December 4, 1915. He was born June 30, 1852, at Waverly, N. J. His grandfather was Prof. James J. Mapes, a noted chemist and scientist, and his mother, Mary Mapes Dodge, a well known author—for many years editor of the St. Nicholas Magazine.

Mr. Dodge spent three years at Cornell University and a year at Rutgers. Shortly after the Centennial at Philadelphia, in 1876, he went to Chicago. It was here that he formed the acquaintance of William D. Ewart, the inventor of the Ewart Link-Belting, and soon after he joined with Mr. Ewart and his associates in the development of the chain business.

At that time, about 35 years ago, the application of chains to power transmission was exceedingly limited, and their use in elevating and conveying machinery was practically unknown. The Ewart chain blazed the way for a new industry, and Mr. Dodge and his associates were quick to seize the opportunity. Mr. Dodge's early work was confined principally to development and manufacture, and here his genius had full play. New chains, new methods of manufacture, and new conveying and elevating appliances were brought out in rapid succession.

After this period of development Mr. Dodge went East and entered into partnership with Edward H. Burr under the firm name of Burr & Dodge, who represented in Philadelphia the Ewart Manufacturing Company of Indianapolis—the original manufacturers of Ewart Detachable Link-Belt—for the exploitation of the Ewart Chain and its allied interests. Out of this partnership grew the Link-Belt Engineering Company, organized in 1888, and after the formation of this company, Mr. Dodge carried out his idea of development along strictly engineering lines. A highly specialized engineering staff was developed, a scientific study was made of the characteristics of the materials to be handled, and special appliances were invented to meet varying conditions.

Among Mr. Dodge's important inventions and improvements were those relating to the construction and manufacture of the Silent Chain. His invention of the bushed joint as applied to this type of power-transmitting medium again marked his mechanical ingenuity, for he put on the market a long-sought-for product which is receiving constantly increasing recognition for the transmission of power.

Tho for many years a large employer of men, Mr. Dodge never met with any strikes or other labor difficulties. He was deeply interested in the personal welfare and advancement of his associates, and a conspicuous leader in the general introduction of the best elements in "scientific management." Fertility of invention and mechanical ingeniuty is the rare combination of qualities that brought success to Mr. Dodge.

New Factory of Gabriel & Schall in Course of Construction.

A Fire-Proof Building

On this page is reproduced a photograph taken at the new chemical plant of Gabriel & Schall of 205 Pearl Street, New York City.

This plant, which is located in New Jersey, was recently completed and is running to its fullest capacity, turning out chemicals that are in constant demand particularly among brickmakers.

The Gabriel & Schall company found its supply shut off on account of the European war, and for that reason decided to manufacture its chemicals in this country, hence, this new factory.

They are well known to the industry because they have supplied carbonate of barytes to scores of brickmakers during the past several years.

One of the most significant features about this factory is that it is strictly fireproof throughout, having been built of hollow tile.

A Highly Efficient Kiln

The initial announcement of Didier-March Company, Perth Amboy, N. J., setting forth the fact that the continuous tunnel kiln, which has given it so much satisfaction during the past five years, would now be offered to clay-product manufacturers generally, brought forth an avalanche of inquiries at the company's office.

Brickmakers generally have been giving a great deal more thought to burning efficiency during the past year than at any previous period, and naturally they are much interested in an announcement such as this company made on the front cover of the December 7 issue of "Brick and Clay Record."

The main feature of the Didier-March kiln is that the heat is kept constant in each zone and there are no intermittent periods. The heat does not change; hence, none is wasted. The green ware is put on trucks that are moved automatically through the different zones of the kiln at stated periods, going gradually through the water smoking, heating and cooling zones.

This company at its own plant, where three hundred tons of finished products have been turned out every day, has been burning its fire-brick at 2,500 deg. F. and finishing in 72 hours.

The Didier-March Company is well known as contractors, engineers and manufacturers of refractories. The company will be very glad to furnish details about this kiln to anybody who makes inquiry.

Belt Joints That Last

Every brickmaker knows how aggravating and expensive it is to have belts pull apart at the joints—there is no need to dwell on that. But what you would like to know is some dependable way to avoid this trouble.

Crescent Belt Fasteners will do it—they are being used to a considerable extent by brickmakers because they have proven so highly efficient. They are constructed by the employment of a special (crescent) plate which covers the joined ends of the belt and fastens with special (crescent) rivets. These rivets are so constructed as to remove no material from the belt—hence the belt is not weakened. You owe it to yourself to find out about Crescent Belt Fasteners—if you don't already use them—and you can get full information by writing to Crescent Belt Fastener Company, 381 Fourth Ave., New York City.

Martin Rocking Grate

The manufacturers of the "Martin" Anti-Friction Rocking Grate, illustrated in the advertising columns of "Brick and Clay Record," call attention to the following special features which they state are not contained in any of the other rocking grates:

It is the only grate manufactured which can be adjusted without the purchase of new parts for all of the different sized coals, including the cheapest slack and screenings.

It is not a dumping grate, and there cannot be the waste of good fuel which comes from too frequent and unnecessary dumping of the fire.

There are no long fingers or any other parts of the grates which can be left projecting up into the fire to be burned off. It is "fool proof."

They call attention to the fact that the "Martin" Grate has been used for the past 15 years by a large number of manufacturers in the brickmaking and other branches of the clayworking industry; that during that long period it has been improved from time to time, as has experience suggested. They also call attention to the following features:

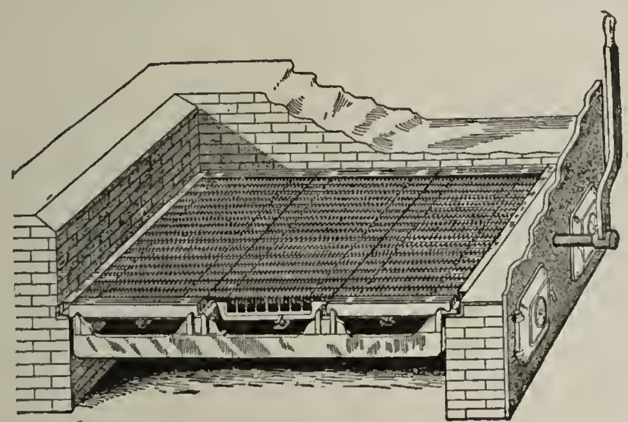


Fig. 1.

Figure 1 shows the grate assembled in a setting commonly used for horizontal return tubular boilers.

It will be noted that the grate bars extend lengthwise of the furnace, and that the surface of the grate is as smooth as a common grate, with no projections to interfere with the use of cleaning tools.

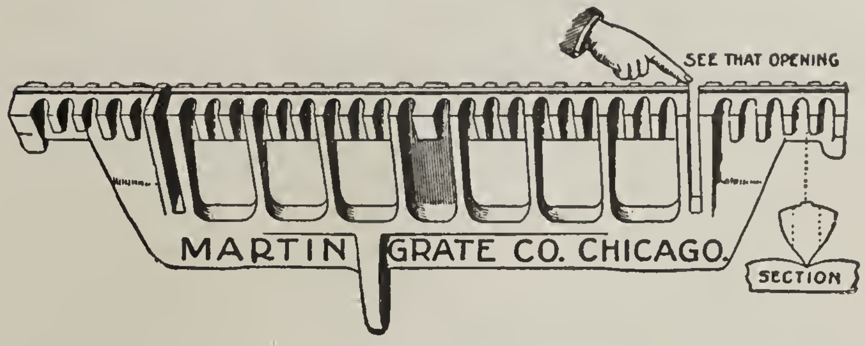


Fig. 2.

Figure 2 shows one of the individual grate bars, and attention is called to the slot cut down near each end of the bar to allow for expansion, and the fact that the heavier part of the bar is five inches below the fire line, where it cannot be attacked, and the statement is made that there has never been complaint of a warped grate bar.

All of the frame work of the grate is down below the fire also, and this part of the grate should last indefinitely.

Each one of the grate bars is supported by two bearing bars, one at either end, going across the furnace, which bearing bars measure 5 inches by 1 inch in section, making the grate an extra heavy one, and doing away with any possibility of sagging under the weight of the coal.

The makers also state that in case of the burning out or breaking of a grate bar, a new one can instantly be dropped in place by the fireman without the necessity of pulling the fire and closing down the boiler.

The "Martin" Grate is manufactured by the Martin Grate Company, 347 S. Dearborn Street, Chicago.

Weller Manufacturing Company, of Chicago, on December 11th, moved into its new and greatly enlarged plant, recently constructed at 1820 to 1856 North Kostner Avenue.

This company is well known among manufacturers of brick and other clay products, because of the high quality of its transmission, power and conveying machinery, which it has been selling in the industry to a considerable extent for many years.

The Weller Company's business with the clayworking trade this year has been exceedingly good, which, however, is naturally to be supposed, as it is so well known to the readers of "Brick and Clay Record," and also because the quality of its product has earned an enviable reputation.

The Ohio Kiln Company, Vigo, Ohio, have enjoyed a very good season, notwithstanding the fact that it has been an off year generally.

Because of their satisfaction and their desire to give thanks to their many customers in the industry, they have sent out a handsome Xmas card, extending to all of their friends "A MERRY XMAS," and telling them also that—

> "The kiln of greatest renown
> Is the one that burns up and down;
> It burns them all good, as all makes should
> From the bottom clear up to the crown."

John J. Moroney, president of the Chicago Brick Machinery Company, who are centrally located in Chicago in the Great Northern Building, recently returned from a trip thru Illinois and Missouri, and reported that business has not looked as good in two years previous as it does now. The first two days after his return from his trip he spent answering inquiries and requests for quotations, etc.

BRICKMAKERS' HEADQUARTERS
FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A.

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New York

The Semi-Monthly Trade Review

WITH AN INCREASE during November of more than seventy per cent, and with December permits sustaining this remarkable upward movement, building operations for the year now drawing to a close will show a substantial gain over those for 1914, in fact, they are well up to the active year of 1913. The gains made during November and the two preceding months are responsible for this splendid showing, operations during that period more than making up for the decreases recorded in the early part of the year.

The November figures for New York City indicate a marked revival in activity, permits for new construction at that center being valued at $12,848,037, against $4,537,059 last year, a gain of 183.2 per cent. Among the seventy-eight other leading cities from which figures were taken, nineteen show gains of more than $200,000 over the same period last year. Albany, N. Y., reports an increase in November building of $287,000; Baltimore, Md., $667,000; Buffalo, N. Y., $290,000; Chicago, Ill., $4,348,000; Cincinnati, Ohio, $454,000; Cleveland, Ohio, $281,000; Detroit, Mich., $2,379,000; Evansville, Ind., $220,000; Kansas City, Mo., $383,000; Los Angeles, Cal., $215,000; Minneapolis, Minn., $836,000; Newark, N. J., $268,000; New Haven, Conn., $651,000; Omaha, Neb., $523,000; Rochester, N. Y., $420,000; Seattle, Wash., $569,000; Springfield, Mass., $453,000; Syracuse, N. Y., $373,000, and Toledo, Ohio, $259,000. The above list of gains is given to show how widespread is the increase in building activity. From coast to coast and from extreme northern states like Minnesota to Maryland, the boom in new operations continues. The South is rather conspicuous by its absence. That section of the country is recovering more gradually than the North from nearly a year of depression. But the South has taken a new lease on life. A short cotton crop at good prices and a large grain crop at wartime values have quickened its industrial pulse so that now the South is preparing to enter upon a period of very active building.

That the present nation-wide revival in building is being reflected in the clayworking industry, is becoming more evident with each passing day. From everywhere, reports are at hand showing that few plants will be idle during the coming winter—a time which is usually looked forward to by the brickmaker as sort of a vacation period. In many cases, establishments that have been closed all summer and most of the fall, are beginning to show signs of life. Laborers are busily engaged cleaning up the premises, while mechanics are hastening to get rusty and dusty machinery into operating condition, so that the owners can get their share of the new business that in some places is getting beyond the

SAY "I SAW IT IN BRICK AND CLAY RECORD"

capacity of local plants. Not a few plants are scheduled to capacity for several months to come, while in several instances brickmakers have had to turn down attractive orders because of their inability to promise an early shipment.

CAR SHORTAGE BECOMING LESS SERIOUS

The annual car shortage, which for a while threatened to become serious and act as a damper upon commercial advancement, has gradually become less and less noticeable, until now all danger of a distressing tie-up seems to have passed. The congestion of freight on the Atlantic seaboard still holds a serious aspect, however, conferences of the trunk line presidents and traffic managers during the early part of the month disclosing the fact that the jam on the eastern railroads is worse now than it has been at any time since the great tie-up of 1907. Here is the situation in a nutshell, according to one of the railroad presidents.

"We are sending war supplies to the allies, but that business forms a very small percentage of the export freight that is now waiting at the docks, terminals and on side tracks for over three hundred miles back into the country.

"If you go over into our freight yards and investigate, you will find car after car loaded with beds, dried beans, automobiles, machinery and a thousand and one other items waiting for steamships to carry such freight to South America and many other parts of the world, where no fighting is going on.

"You see our manufacturers are now finding new markets for their products all over the world, markets that were formerly supplied by England, France and Germany."

Certain it is that the traffic in war supplies is constantly becoming less of a factor in our present industrial boom. Our rapidly growing export trade, coupled with a greatly enlarged domestic demand, is putting the business of this nation on a sound basis—one that augurs well for the approaching new year.

CROP FIGURES GREATEST PROSPERITY MESSAGE

But perhaps the greatest prosperity message of these closing weeks of 1915 comes with an announcement of the revised crop reports, issued on December 15 by the Department of Agriculture at Washington, D. C. Never before in the history of the country have Uncle Sam's harvests reached the enormous figures, both as to production and value, as those of this year's harvests.

Based on prices paid farmers on December 1, the total value of the leading farm products reaches the astounding figure of $5,280,000,000. This exceeds last year's record yield by $415,000,000, and is greater than the average value of crops during the five-year period from 1909 to 1913, by $615,000,000.

With wheat prices soaring, American farmers began the season by planting vast areas in grain, with the result that the first billion bushel wheat crop is recorded, and the corn crop is the most valuable in history.

Approximately 486,570 square miles—a territory greater than the combined area of Germany, France, Belgium, Holland, Denmark and Switzerland—were planted in the country's principal crops.

Although the corn crop is only the second largest recorded as to acreage and harvest, it is valued at $1,755,859,000, which is $34,000,000 more than that of the previous most valuable crop, despite the fact that farm prices are about seven cents lower than on December 1, 1914. The revised reports place the corn yield at 3,054,535,000 bushels,

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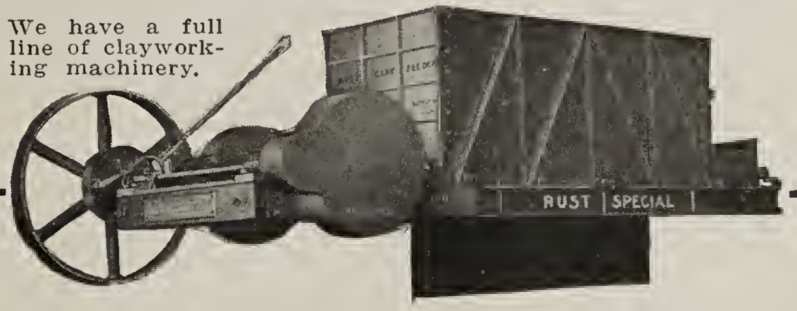
THE RUST SPECIAL
is the Best in Clay Feeders—not because we claim it, but because clay-products manufacturers in all parts of the country have proven it the best in actual use. Let us explain its advantages—how it can make money and save it for you.
Marion Machine, Foundry & Supply Co.
Box 395, Marion, Ind.
We have a full line of claywork-ing machinery.



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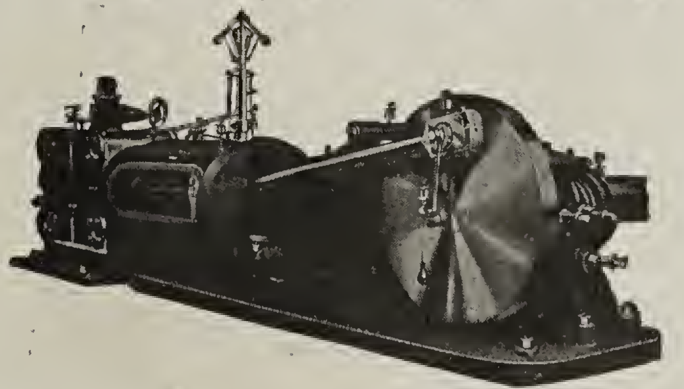

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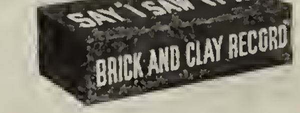

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Do you know positively when your kiln has reached and sustained for a sufficient length of time—a maturing temperature?

A Price Pyrometer furnishes absolute information.

The Price Electric Co.
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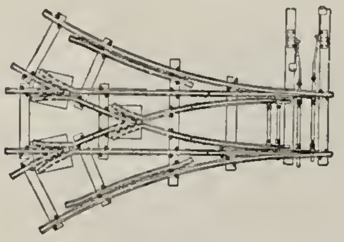
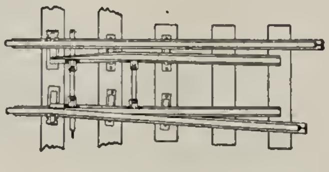
Shipped the Day You Want It

All styles of frogs, switches, switch stands, portable track, etc., are constantly kept in stock. No matter what track equipment your order calls for we can ship it promptly.

Catalog C gives full information





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Contains lots of good information for the man who wants to reduce his power and light cost, as well as the gas engine operator who is interested in getting the most efficient results from his equipment.

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The Bruce-Macbeth Engine Co
2134 Center St. N. W.
CLEVELAND

Davenport Locomotive Works,
Davenport, Iowa

a cut of 36,000,000 bushels from the preliminary estimate.

In the light of these facts, it would seem that the manufacturer of drain-tile, silo blocks or hollow-tile for farm buildings has little to fear in the way of curtailed demand during the coming year. With plenty of money to spend, the farmer will be more receptive than ever before to arguments for better drained lands, the value of feeding silage from a brick or hollow-tile silo and the ultimate economy of permanent farm buildings of burned clay. He will be in the market with increased buying power for these materials, and, unless all signs fail, the clay products manufacturer who is reaching the farmer will have little to complain of in 1916.

WALL STREET BUSIER THAN IN YEARS

While the sun does not rise and set in Wall Street, as some New Yorkers would have it, conditions there are usually indicative of the general trend of the nation's business. Some side-lights on what is taking place in the Street were given out recently by R. J. Dunham, vice-president of Armour and Company, Chicago, after his return from a visit to New York.

"I have never before seen New York crowded with financial and other business to the extent that now obtains," said Mr. Dunham. "Leading banking interests have their time so taken up with pressing affairs that to a large extent they do not discuss the future, except in a general way.

"As to money, it is the general belief that the present period of ease will continue not only thruout the war, but after its close. This has resulted in the taking up of financial plans which involve large amounts of credit and cash.

"Of the securities market, it is the view of financial interests that the war stocks have been overdone, but that railroad issues after a while will enjoy larger prominence and much higher prices."

These few words show to what extent plans for industrial enterprises are being entertained. With this widespread expansion is coming a greater demand for factory building materials, for the homes of workmen with more steady incomes, and for stores and shops without number, which are springing up to supply the demand of a prosperous population. Truly these are good days for the brickmaker.

In the Wake of the News

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

PERSONAL

C. B. Mayhugh, who came from Demos, Ohio, last fall to assume the general managership of the Star Brick and Tile Company of Bay View, Wash., reports that he has operated the plant since his arrival at Bay View up to the present time. Mr. Mayhugh has built a twenty-eight foot diameter round, down-draft kiln at the plant, which has proven very satisfactory. He expects to build another very soon which will be thirty-two feet in diameter. The Star Company has had no trouble in selling its output at a good price and has been remarkably free from manufacturing troubles.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

F. A. Hoiles, manager of the Alliance (Ohio) Brick Company, reports that his company has increased the output of its plant seventy-five per cent during the present year which gives it a daily capacity at the present time of 70,000 first quality rough-textured face-brick. The company's sales and shipments in 1915 exceeded those of 1914 by sixty per cent. Mr. Hoiles reports that his company's product has been shipped as far north as Montreal and as far south as New Orleans. It has gone into Florida and North Dakota. He states that the plant has been oversold nearly all of the year.

George Howard, principal stockholder in the Howard Clay Forming Company, Newell, Ohio, has disposed of his interests in the plant to Fred Owens and Frank Simms, local potters. The plant was erected seven years ago by Mr. Howard. For two years he owned and operated it himself. In October, 1913, a company was organized and incorporated under the laws of West Virginia. Mr. Howard has stated that the plant would be operated as before, under the management of the new owners, who have already taken charge.

Edward Whitmer, for many years a resident of Jacksonville, Ill., and known thruout Texas, Arkansas, Oklahoma and Kansas as a brick plant expert, died suddenly on November 19th, at his home in Chicago. Mr. Whitmer, together with his brother, Howard, established the Whitmer Tile and Brick Company at Jacksonville in 1883. The plant was one of the largest in that part of the state and was operated successfully for a number of years. Mr. Whitmer was also at one time general manager of the Thurber (Tex.) Brick Company.

F. H. Chapin, general manager of the northern territory of the Hydraulic-Press Brick Company, has appointed C. W. Irwin as manager of the Minneapolis, Minn., branch of this company. Mr. Irwin has been in charge of the Toledo plant. S. W. Moore, of Indianapolis, succeeds Mr. Irwin at Toledo. The changes take effect the first of the year. Mr. Irwin will concentrate on the development of face-brick sales in his new territory.

Robert M. Adams, sixty-four years old, a pioneer contractor and civil engineer of Detroit, died on Dec. 3 at his home, 461 Seldon avenue. His health had been failing for the last year. Mr. Adams superintended the laying of the first brick paving in Detroit. He had charge of the construction of the first electric railway in Detroit. He was born in Watertown, N. Y. Surviving him, are a widow and two sons. For the past eight years he has been active in selling brick.

J. F. McCann of New Brighton, Pa., who has been appointed superintendent of the New Streator (Ill.) Clay Manufacturing Company's plant, arrived in that city recently, making the trip from his former home by automobile. Prior to his connection with the Streator company, Mr. McCann has been affiliated with brick companies for a number of years, having just recently been in charge of the A. F. Smith Brick Manufacturing Company of New Brighton, Pa.

Joseph P. Mack, second vice-president of the Union Paving Company of Philadelphia, has been chosen as a member of the Board of Directors of the Pennsylvania Manufacturers' Association Casualty Insurance Company, and reports that his new duties are of a most interesting

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That means NUGGET—15c per pound

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REG. U.S. PAT. OFF.

The Webb Wire Works
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Swedish Steel Cutting Wire
in coils or looped lengths

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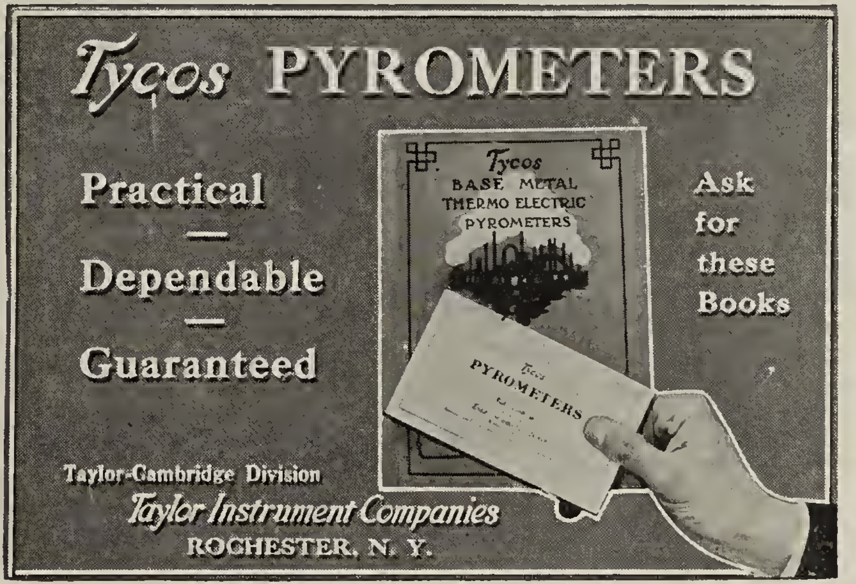

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THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

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All Sections from 12 lb. to 40 lb. per yard

Write or wire us when in need

No order too large to handle promptly or too small to receive immediate attention

nature. Mr. Mack is well known among local clayworkers, being associated with many brick manufacturing concerns.

Frank J. Helwig of Pueblo, Col., for many years associated with the management of the Standard Fire Brick Company of that city, has assumed the management of the Trinidad (Col.) Brick and Tile Company's plant, succeeding W. G. Rupp, whose work as a contractor and builder is taking up his entire time. Mr. Helwig took charge of the plant on December 1.

State Senator Valentine Mathes of Dover, N. H., who was formerly engaged in the manufacture of brick in that city, died suddenly on November 27. While a brickmaker, Mr. Mathes realized the need of more adequate water transportation and organized a company which brought he and his associates large returns on their investment.

Henry Croas, a brick manufacturer of Pittsburgh, Pa., has purchased the George Marwin Mead estate, in Greenwich, Conn., for a country home. The property comprises about eighty-two acres of land and an old colonial house. It is said to have cost Mr. Croas $82,000.

H. W. Jennings, Washington representative for the General Fireproofing Company, with offices in the Alaska building, Seattle, has returned to that city from a two weeks' trip to California. He is now enlarging his quarters in the Alaska building.

George F. Clippert, a Detroit brick manufacturer, returned recently from a week's hunt at the Turtle Lake Club in northern Michigan. He brought a large deer back with him.

George A. Loomis, formerly with the Vincent Clay Products Company, Fort Dodge, Ia., has severed his connections with that company to take a position with the United States Bureau of Standards, Pittsburgh, Pa.

G. D. Cadwalader, secretary of the Los Angeles (Cal.) Pressed Brick Company has been in San Francisco and Richmond visiting the company's representatives in those cities.

Harold E. Thompson, superintendent of the Indiana Paving Brick and Block Company, Brazil, Ind., is rapidly recovering from an injury received recently in a collision with an automobile.

J. Gardner Bassett, of the Bridgewater (Mass.) Brick Company, died at his home in that town on November 28, at the age of sixty-four years.

James A. Murray, of the Paducah (Ky.) Brick and Tile Company, has been chosen vice-president of the Paducah Manufacturers' Association.

ALABAMA

The Graves Shale Paving Brick Company, Birmingham, Ala., is installing a new cutting table and disc feeders and is overhauling all of the machinery, driers and kilns at its plant. According to its superintendent, E. M.

The money you save
On Your Fire Insurance Rate
the very first year will come near paying for the complete installation of
HARDINGE WATCHMAN'S CLOCK

Ask us what other brickmakers think of it—let us also tell you what it will do for you.
Approved by National Board of Fire Underwriters.

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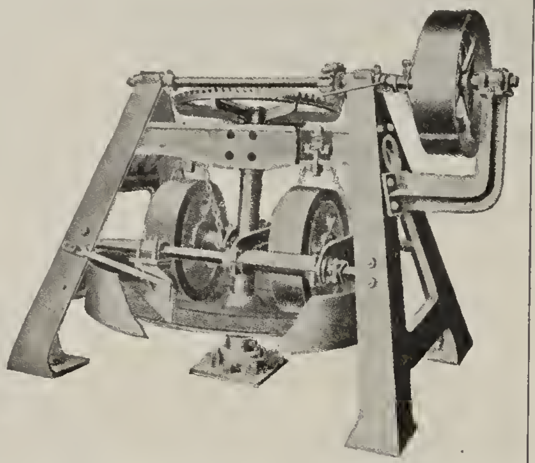
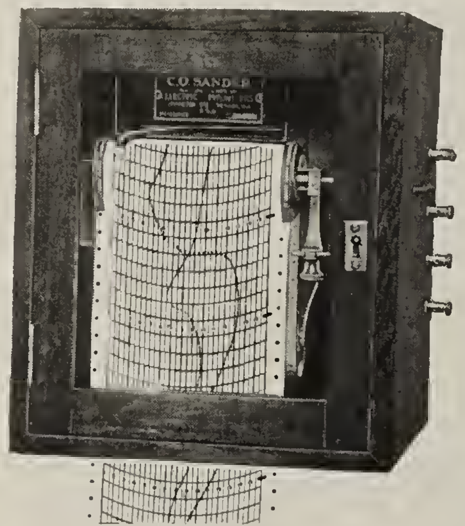
THE EAGLE DRY PAN



Write for Prices
EAGLE IRON WORKS DES MOINES, IOWA



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at the time of day, or—glance at your watch? Of course you use the old reliable timepiece? Yet it is infinitely more difficult to guess temperatures than time. The Sander is a reliable pyrometer, it eliminates the necessity for guessing at heats. Investigate
The Sander Instrument Co.
136 19th Ave., Irvington, N. J.

With your Shovel ?
In a hurry ? Must have clay ?
The Beam swings and drops,
Rips and rams
For dipper load—
Swings back—then dumps—
and the chains—"They will not break"
if they're WOODHOUSE SPECIALS
We'll tell you why.
WOODHOUSE CHAIN WORKS Trenton, N. J.

SAY I SAW IT IN BRICK AND CLAY RECORD

Edgington, the company is planning to erect new kilns in the near future to further increase its output.

ARKANSAS

The Texarkana (Ark.) Brick Company is planning to extend its clay sheds during the coming winter. A. H. Miller, secretary, reports that the company is making a better dry-pressed brick than ever before, and states that the future looks very bright so far as his company is concerned.

The Dardenelle (Ark.) Brick and Manufacturing Company reports the building of a new up-draft kiln and the installation of a new engine. This plant has been in operation but seven months under the new management, having previously been closed for two years following the failure of the former owners to produce a first quality brick. Now, however, the plant is turning out a high-grade face-brick, according to its present manager, Wm. R. Gibson, and will extend its market just as soon as a sufficient stock can be acquired to warrant the taking of a large number of orders. The company is planning to enlarge its clay shed in the near future, also to build additional kilns.

CALIFORNIA

The California Tile Contracting Company has moved its offices from 461 Market Street to 922 Hearst building, San Francisco. Jay Clark is president of the company.

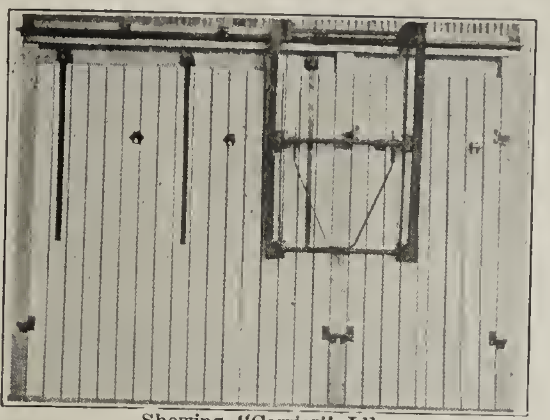
The city engineer of Fresno, Cal., has been instructed to draw up plans for the construction of a storm sewer and for the laying of a number of additions to the city's sanitary sewer system. This move is preliminary to the calling of an election to vote on sewer bonds totaling about $150,000.

The Los Angeles (Cal.) Pressed Brick Company, according to its attorney H. H. Craig, is planning to erect a large plant at Alberhill, five miles from Elsinore, for the manufacture of pressed brick, tile and sewer-pipe. The company owns three hundred and twenty acres of fine clay land at this point, and will start at once the building of one of the largest plants in Southern California.

Daly City, Cal., is in the market for a considerable amount of eight-inch and four-inch salt glazed, ironstone sewer-pipe. A storm sewer with the necessary laterals is also to be constructed; and the municipality is calling for bids on vitrified paving-brick for paving portions of Knowles, Theta, Vista, Park, Lake, and Melrose Avenues and other thorofares.

The report of the building inspector of San Francisco (Cal.) shows a pronounced gain in building during the month of November, when permits were issued covering brick and frame construction to the amount of $1,332,000, as compared with $988,000 for the same month of last year, and with $1,236,000 for the month of October this year. About one-half of the total building during the month was for brick construction.

The Craycroft-Herrold Brick Company of Fresno, Cal., reports business as being very good during the past two or three months. William Turner is now superintendent of the plant. Following the death of his father, C. J. Craycroft on November 17, Frank J. Craycroft, his son, has become president of the company. The elder Craycroft met his death while unloosening a pipe on top of a roof twenty-two feet high. He slipped and fell from the roof, receiving injuries which proved fatal less than two hours later. Competition and freight rates are keeping the company from extending its business over a radius of



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Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction. Write for catalog B2 and all details. Sold on 60-day trial.

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One customer using Brown Pyrometers writes, "Had we had your Pyrometers when we started in business 20 years ago we would be rich today." Why don't you start right at once?

The Brown Instrument Co.
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And run the risk of losing a nice order?

The Hinde and Dauch Corrugated Box

is economical, but it does what it was designed to do—*Protects Your Sample Brick Thoroughly.* The corners and edges cannot get broken or chipped when it is used.

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Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

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Does the Civil Engineer take his measurements with a rubber tape? Will you be satisfied to measure your heat with an instrument even more flexible?

Write for a copy of "Pyrometer Facts."

The Stupakoff Laboratories
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LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

The Cement for Paving Brick Grout

Lehigh is High in Strength, Uniform in Color and Fineness. You Don't Have to Guess with Lehigh.

Specify and Use Lehigh in all Brickwork. Remember the Mortar Joint is an Important Factor in the Wall.

Use Lehigh and Cease to Worry.

It Assures Satisfaction Under All Conditions.

LEHIGH CEMENT
Cement Grout for Permanence

more than one hundred miles from the plant, but as heretofore, it expects to make vigorous efforts to get all it can in the present territory.

COLORADO

The Longmont (Col.) Brick and Tile Company is installing a new eight-tunnel drier at its plant.

The Fairview Brick and Clay Company's plant has been purchased by C. S. and W. D. Watson, owners of the Denver (Col.) Mantle and Tile Company.

CONNECTICUT

The American Brick Company of Berlin, Conn., has brought suit for $8,000 damages and an injunction against the city of New Britain, Conn., to restrain it from turning its sewage into the Mattabessett river. The plaintiff alleges that its tenants have contracted disease as a result of the condition of the river, which runs near its property, and that hay on its land has been rendered unfit for use.

DISTRICT OF COLUMBIA

L. Perry West, of the West Brothers Brick Company, reports that he has received an order for furnishing about 400,000 common-brick to be used in the new $500,000 McCormack apartment house now being built at Washington.

There is a great deal of confusion with regard to the brick to be used in the new building for the Department of the Interior, Washington, D. C. First of all, the common-brick contract has been let and, because the local brick is not like that made in New York, those in charge of the work do not seem willing to accept the samples, which are now being tested. Regarding the face-brick, Secretary of the Interior Lane has come out as being absolutely against the warm gray-tinted brick which has been selected by architects and the Fine Arts Commission, and is strong for a red brick. He is likely to get his way. To modify the red tone of the brick, which the Secretary would use, it will be necessary to employ certain kinds of special mortar in the binder. It is expected that if he gets his way the use of the red brick will cause a delay in the building, which has been a rush job for nearly four months. There are 1,200,000 face-brick to be used as well as 4,500,000 commons, according to the estimates of the Supervising Architect of the Treasury. It is said that several thousand dollars have been spent in brick exhibits erected near the building because of the dispute. The brick companies that are bidding are much incensed over the whole affair which has been "hanging fire" for months.

GEORGIA

The Standard Brick Company of Macon, Ga., announces the addition of hollow building and partition tile to its already long list of products.

Stevens Brothers Company, Stevens Pottery P. O., Ga., has installed a new wet-pan, a hollow-ware machine and two thirty-foot kilns at its plant. Business, according to W. C. Stevens, president, has been improving for the past sixty days.

ILLINOIS

On December 16, the stockholders of the Reddick Brick and Tile Company, Pontiac, Ill., will hold a meeting for the purpose of voting on the dissolution of its charter.

The Decatur (Ill.) Brick Manufacturing Company reports a good demand for its products, and looks for better prices. An effort is being made, according to E. D. Mattes,

SAY I SAW IT IN BRICK AND CLAY RECORD

general manager, to obtain better freight rates which, it is hoped, will somewhat increase the company's shipping radius which is now limited by existing high rates.

A new brick storage shed to hold a six days' run of clay is being built at the Danville (Ill.) Brick Company's plant, according to Harvey C. Adams, president. A large crusher is being installed in the middle of the shed and tracks are being arranged so that when the shale is dumped, it will be screened, the larger pieces passing on to the crusher. Additional drier tunnels and kilns will also be built at the plant during the next two or three months. In the office, Frank Adams has been appointed chief accountant, succeeding Walter Currie, who has resigned. The company reports a quiet demand but has had a fair year, on the whole, with a good outlook for a substantial business next year.

INDIANA

The Indiana Brick Company of Anderson, Ind., has moved into its new offices on the fifth floor of the Union building. Frank W. Makepeace, head of the company, states that the plant will be operated on full time until the middle of January, when it will be closed to re-open again March 1.

The Gill Clay Pot Company of Muncie, Ind., whose plant was destroyed by fire recently, will use the property of the McCaskey Calculator Company, which includes a large factory building that has been abandoned, in rebuilding its plant. It is thot that the new plant will be in operation very soon.

The Elkhart (Ind.) county commissioners have made a careful investigation of paving materials. They report finding brick superior and a material that stood the best tests of any that they could obtain. As a result of these tests the Lincoln Highway officials in Elkhart county decided on brick for that section of the road.

The citizens of Greenfield, Ind., are agitating for a brick-paved road to Indianapolis, twenty miles away, holding that such a road would make Greenfield popular as a residence city for business men in Indianapolis. Brick is the only material mentioned for the proposed new road.

The American Sewer Pipe Company of Brazil, Ind., has decided to enlarge its plant, building at once a fifty by ninety-six foot addition, three stories high. The addition will be erected north of the present plant buildings and, when completed, will double the plant's capacity. Seven new kilns will also be built.

Mayor Bell of Indianapolis, Ind., is expected to meet the request of local clay products manufacturers that they be given one representative on the advisory commission to suggest changes in the Indianapolis building code. The request for a representative on the commission followed a meeting of the manufacturers with Jacob Hilkene, building inspector. The advisory commission, if the mayor meets the request, will consist of one civil engineer, two architects, one contractor, one real estate man, one insurance man and one representative of the clayworking industry.

The Jeffersonville (Ind.) Brick Company is closing what has been a record year, according to R. L. Akers, proprietor. With two new city schools and eight township schools in the county, he has made many large brick sales. The demand has kept the plant busy thruout the whole season. Several improvements and additions of equipment are being planned. One of these is a new kiln. Mr. Akers is also figuring on a repress machine. He manufacturers stiff-mud brick. An experience

BE AN ACCOUNTANT
instead of merely a good Bookkeeper

This is a talk to Bookkeepers and office men who want to go higher.

Your Employers are waking up to the importance of higher accountancy in their business. New problems are arising daily. The man who is simply a good bookkeeper cannot always solve those problems wisely, because he lacks the training in the broad FUNDAMENTALS of accountancy, and the Business Law with which accountancy must conform. It is just this kind of instruction that you will receive in the correspondence course of the Walton School.

The Walton Way is not a cramming process, but an easy and logical and intensely interesting development of the fundamental principles that underlie all accountancy. Once these principles are thoroughly understood, the solving of accounting problems is merely the application of the principles learned.

The Walton Way makes Auditors, Comptrollers, Executives and Certified Public Accountants out of men who are too big to be mere bookkeepers.

If you are satisfied to remain a subordinate, we can do nothing for you, but if you have the fire of real ambition within you, and are willing to WORK, we can do EVERYTHING for you—everything necessary to strengthen your mental muscles, stiffen your spine, ripen your judgment, make you the Court of Last Resort in every Accounting problem in your establishment.

Write today—for our new, interesting book, "THE WALTON WAY TO HIGHER PAY."

It explains our courses, faculty, and describes in detail our unequaled facilities for serving you. Send for it.

WALTON SCHOOL of COMMERCE
711-721 Peoples Gas Bldg.
CHICAGO, ILL.

Down in the Pit

Where the big shovel is loading cars—half yard, one yard—every time it swings—you ought to have

A Baldwin Gasoline Locomotive
light, speedy, powerful— to yank the loads out—the empties in.

Saves time—gets results—both mean money. Ask for Record No. 74. It's good.

The Baldwin Locomotive Works
Philadelphia, Pa., U. S. A.

For All Down-Draft Kilns

Patented February 9, 1915

The McManigal Super Heating System collects the waste radiated heat from the kiln crowns and feeds it into the kiln furnaces as superheated air, in quantities sufficient for combustion and burning—at a temperature averaging 700° F.

It is actually saving 30% of the fuel in burning paving brick, it is reducing materially the burning period—It should be on your kilns before another season starts.

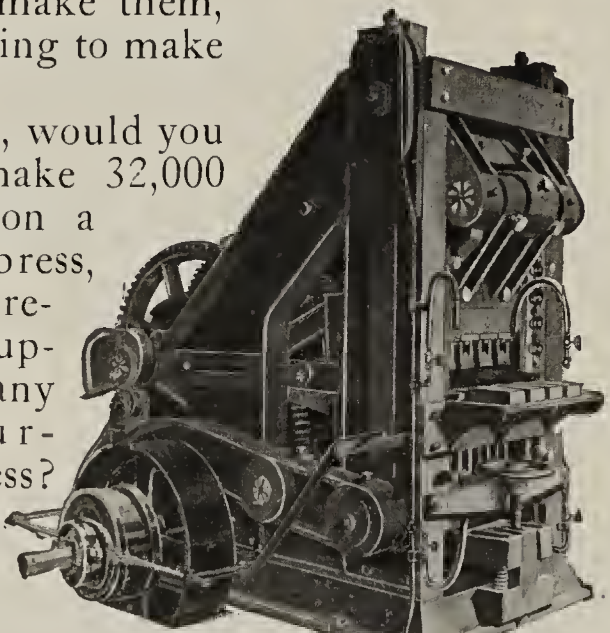
The McManigal Grateless Furnace Co.
Logan, Ohio

DRY PRESS BRICK

Do you make them, are you going to make them?

Can you, would you like to make 32,000 each day on a reliable press, with less repairs or upkeep than any other Four-Mould Press?

It is being done every day on



The GRATH PATENT PEERLESS PRESS

It has high speed combined with great strength and efficiency.

Send for information now

ILLINOIS SUPPLY & CONSTRUCTION CO.
Century Building ST. LOUIS, MO.

during the summer has set him to considering the taking on a line or two of face-brick.

The Ayer-McCarrel-Reagan Company has installed a steam shovel at its Carbon (Ind.) plant and has a force of men at work building a new clay storage shed. In addition to this, other improvements are under way which will put the plant in splendid operating condition and increase the output. The plant has been running to full capacity for several months and has sufficient orders on hand to insure a full-time schedule for several months to come.

The Standard Brick Company, Crawfordsville, Ind., has just completed a number of improvements which will increase the capacity of the plant about fifty per cent. Two new round down-draft kilns have been installed and a contract let for five more. These, with the four old square kilns, will make a total of eleven, and will give the plant a daily output of 30,000 paving-brick. A new clay shed is being built with a steam heating system with which it is expected to continue operations thruout the entire year. The company has arranged for the purchase of fifty acres of clay land immediately adjacent to its present pit. Ray Thomas, manager of the plant, is pushing the improvements as rapidly as possible and hopes to have them all finished before cold weather sets in.

KANSAS

It is estimated that nearly $200,000 worth of paving will be done in Topeka, Kan., during the coming year. Considerable brick will be used in this work, which includes the paving of about five miles of streets and one mile of alleys, under petitions allowed by the local commissioners.

The Salina (Kan.) Vitrified Brick Company reports business as being exceedingly good since the middle of last August. Machinery for the manufacture of a complete line of hollow ware, including hollow-brick, hollow-tile and drain-tile, is now being installed at the plant. In the office, Virgil Hamilton has succeeded Ellis Gilkerson as cashier.

Brick paving for rural roads was urged by Harry Tidd, representing the Western Brick Company of Kansas City, at a meeting of the Mulberry (Kan.) commercial club recently. Mr. Tidd said that the cost of maintaining roads paved with brick is much less than for roads built of rock. He said that a brick highway is more durable than a rock road. Some of the states mentioned by Mr. Tidd as having used brick for country roads were Florida with five hundred and Louisiana with ninety-three miles of this type of road.

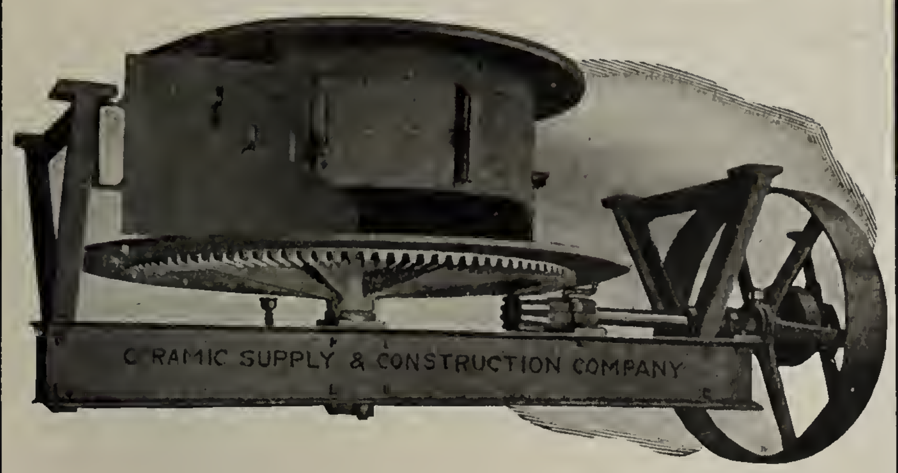
KENTUCKY

All plants of the P. Bannon Pipe Company, Louisville, Ky., continue in active operation, with prospects that they will continue so for some time to come. A. P. McDonald, sales manager of the company, is away on a trip out in the state, having found that the Kentucky market is well worth cultivating. The year closes with the Bannon Company showing a satisfactory total output when compared with previous years.

Liquidation of the affairs of the old Hydraulic Brick Company of Louisville, Ky., is proceeding slowly, according to A. J. Jungerman, president of the company, which is in the hands of the United States Trust Company. A line of machinery which is virtually intact, is

(*Continued on page* 942)

SAY "I SAW IT IN BRICK AND CLAY RECORD"



"Bolt It to the Bin"

The Columbus Feeder

for automatically feeding

Crushed Clay to Dry Pans *and* Pulverized Clay to Pug Mills

is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

Send for Circular.

Ceramic Supply & Construction Co.
Columbus, Ohio

Yellow Strand Powersteel Truckline

It can easily move two loaded freight cars.

It coils up flat—takes up practically no room.

Its rated breaking strain is about 12 TONS.

Powersteel Truckline

is about 18 ft. long and ½ in. dia. Y. S. wire rope, equipped with strong drop forged hooks and heavy manila or wire slings—as desired.

Buy yours now for $6.50—test it—see it deliver the goods—then you will want one for each of your trucks.

Broderick & Bascom Rope Co.
703 N. Second St.
Saint Louis, Missouri

POSTERETTES

200,000 of the "Build with Brick" posterettes have been used by brickmakers throughout the country. As many pieces of mail and express matter have carried the "Build with Brick" slogan to a vast army of prospective homebuilders.

Here is the second edition—the stamp advertising paving-brick. It tells a story that carries a moral—and that moral means better business for the men who make paving-brick.

How about using some of them—now?

Printed in THREE colors

Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York

Chicago, Ill.
Kansas City, Mo.
East Liverpool, O.
Philadelphia, Pa.
New Orleans, La.
St. Louis, Mo.
Boston, Mass.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

THWING HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Never Sleep

If the burner knows that his work is being

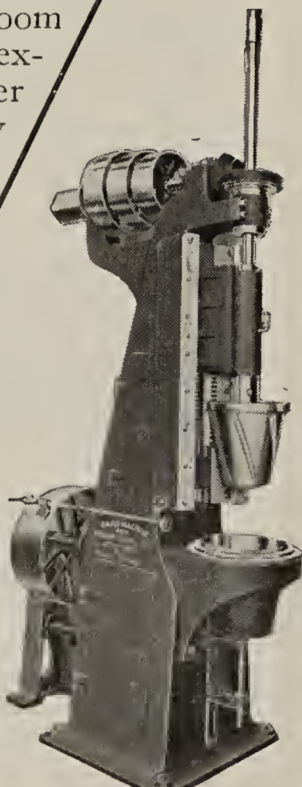
Recorded in Ink

every few minutes, he will stay **On the Job.**

Multiple Recorders reduce the cost of installation.

How Many Kilns Have You?

Thwing Instrument Company
437 North Fifth Street
Philadelphia



A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

part of the property, the disposition of which has not been made. Until all the property is sold, the formal dissolution of the company will not take place.

Nineteen-fifteen will go down in the records of Louisville brickmakers as a good year. According to computations made shortly before the end of the calendar year, it develops that the majority of the members of the trade will be able to show more than nominal increases over the previous year, rough estimates running all the way from ten to twenty-five per cent, according to circumstances in individual cases.

R. B. Tyler and Company, Louisville, Ky., continue to make deliveries on a number of small jobs. According to Mr. Frazier, salesmanager, the year closes with a gain in business of fifteen per cent over the previous twelve months' record, which, considering conditions, is altogether satisfactory. The company has not added to its lines, but is handling the same ones, having extended the business done in all of them.

"In order to keep our ten teams busy during the winter months, we have made arrangements with the mines to supply the public with a high grade lump coal at cost price," is the way the Hillenbrand Brick Company, Louisville, Ky., announces a departure in its business. With the coming of winter the brick manufacturers' business naturally falls off, and where a company owns its own teams, as does the Hillenbrand company, the question of what to do with them to make them pay for the feed they consume, comes up for settlement.

Building operations in Louisville have continued their onward march in December, altho there was some rain and snowy weather toward the latter part of the month. Operations well along in construction, however, were numerous enough to keep the dealers and manufacturers busy on deliveries, several stating that, from present appearances, they would keep going thru the winter. November building operations, according to the report of the City Building Inspector, showed a gain of nearly $100,000 over the same month of 1914, the one hundred and sixty permits involving a total outlay of $246,030.

In addition to the workmen's compensation measure which will soon be before the Kentucky legislature, brick manufacturers are interested in plans for the enactment of a new fire insurance code. This is not as vital to a brickmaker as to a lumber manufacturer, but it directly affects the former. A commission, named two years ago by the governor, has practically completed the draft of a new code and will present it to the legislature which convenes next month. This law will replace those statutes enacted two years ago, which, when enforced, drove practically all of the fire insurance companies licensed to operate in Kentucky, out of the state.

Indications are that the plant of the Coral Ridge Clay Products Company, Louisville, Ky., will operate thruout the winter, supplying jobs which are already under contract. George H. Fiedler, general manager of the company, states that he is looking after some new prospects, but that nothing of special interest has developed during the past few days. Nineteen-fifteen has been a splendid year with this young company and has been marked, not only by heavy operations and large contracts, but by the addition of two lines of face-brick, hollow-tile fireproofing and additions to the capacity of the plant.

Leo M. Parsons, of the Tyler Building Supply Company, Louisville, Ky., reports some interesting sales.

(*Continued on page* 944)

Your Ware Is As Good As You Make It!

To make a merchantable class of ware it devolves upon you to perfect each single phase of the manufacture—from the selection of the clays to the sorting of the finished product.

The correct measuring and mixing of two or more raw clays is of tremendous importance.

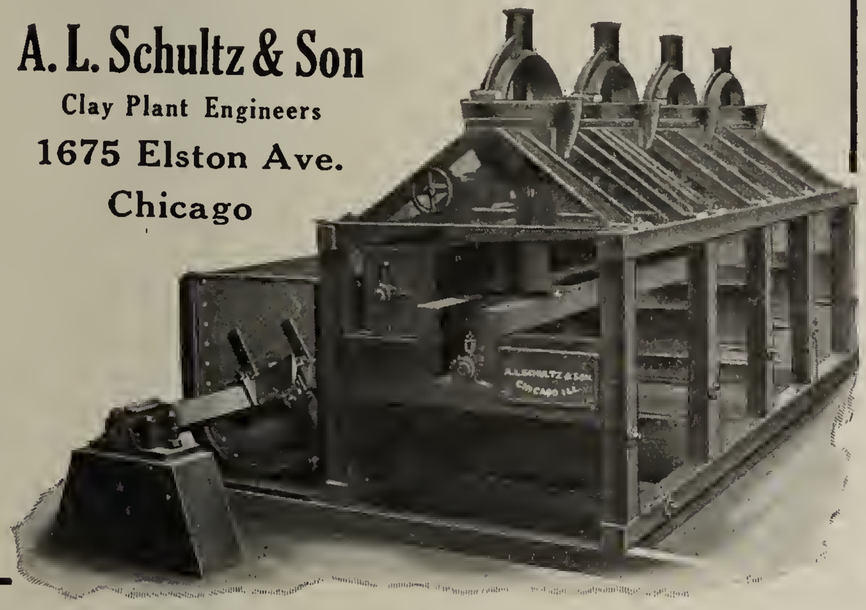
Financial success or financial failure depends upon the ability of your men or machines to standardize the batch.

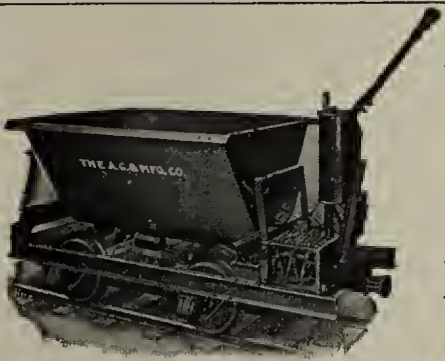
To depend on your men to measure, to guess, to mix with shovel—or slide gate and chute is to have the batch run wild.

A dependable machine is your only alternative, and that machine is the Schultz proportioner—it measures, mixes and tempers. Set it and leave it. It does its work well.

Get details from

A. L. Schultz & Son
Clay Plant Engineers
1675 Elston Ave.
Chicago



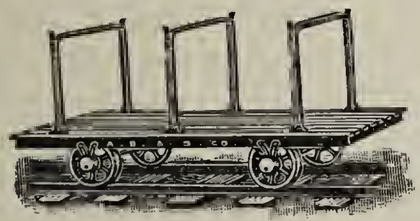


No. 217-E. Side Dump Car Equipped with Motor

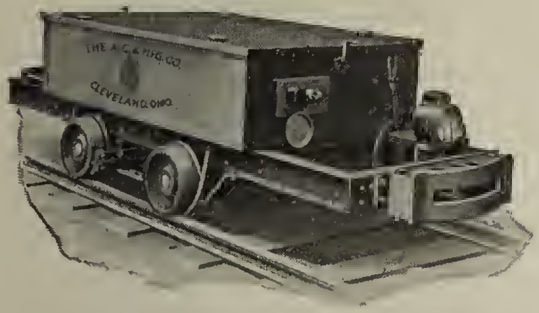
ATLAS
High Efficiency
Cars and
Electric Locomotives

REDUCE YOUR HANDLING COSTS

By the Purchase of Efficient Equipment



No. 126 Double Deck Dryer Car



Storage Battery Locomotive for general use.

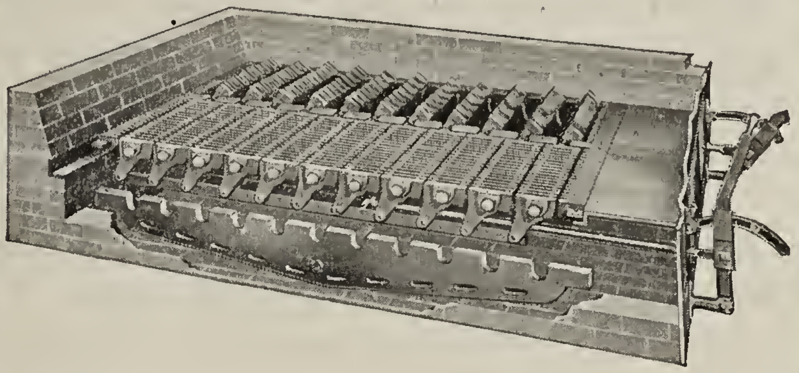
will meet your requirements. Let us send you catalogue and quote prices.

THE ATLAS CAR & MFG. CO.
1287 Marquette Road, Cleveland, Ohio

Some Brickmakers Have Cut 25% From their Coal Bills

—we have done better than this for many brick plants, saving as high as 33 1-3 per cent for some, where we have installed

The Canton Boiler & Kiln Furnace Shaking and Dumping Grates



We know the needs of every manufacturer of clay products—our grates were designed especially to fit their requirements—that's why Canton Grates are doing duty in hundreds of plants today.

With the Canton Grate it is easy to keep your fires clean and free burning, with the least time and labor, and with the doors closed.

There is no loss of fuel while shaking—the dumping device works with ease and perfection.

The Installation is Simple

Now—is the time to decide that you WILL save money on next year's coal bills—we'll help you do it.

Grates for Boilers and Kilns

The Canton Grate Company
1706 Woodland Ave., N. W. Canton, Ohio

Supply Your Engineer with Money-Saving Mechanical Rubber Goods

Help your engineer and other mechanics to get the highest results at the least cost. Here are "first aids" to maximum efficiency at minimum expense—service considered.

P.P.P. Rod Packing
Reg. U. S. Pat. Off.

Ebonite Sheet Packing

Hercules Conveyor Belt

Ebonite Pump Valves

Our 1916 Catalogue, 180 pages, profusely illustrated, is just off the press, and should be in the hands of every live-wire brick or clay plant superintendent.

This is an expensive book, and we want it to go only to the right man—you, the superintendent or owner, therefore please use your company's letterhead when you write—"Send me my copy of your Catalogue."

QUAKER CITY RUBBER CO.

PHILADELPHIA
629 Market Street

PITTSBURGH
211 Wood St.

CHICAGO
182 West Lake Street

NEW YORK
207 Fulton Street

The company will supply the enamel brick for a new laundry which is going up on Chestnut between Seventh and Eighth streets in that city, and also for a moving picture theater, which is being built at Thirty-eighth street and Broadway. Since enamel brick orders are rather scarce, these are especially desirable. Three sales of unusual interest made by the company call for a new rough-textured face-brick which is being made at the Brazil (Ind.) plant of the Hydraulic-Press Brick Company.

LOUISIANA

Beginning with December 1, the Salmen Brick and Lumber Company's brick plant at Slidell, La., started to work a night shift for an indefinite period. The company recently announced a substantial increase in pay to its employes.

The plant of the H. E. Buck Brick Manufacturing Company at Lake Charles, La., just south of New Orleans was threatened with destruction by fire recently when flames broke out in the company's box factory. Five railroad cars were destroyed in the blaze which caused an estimated damage of $10,000.

Under an order issued by the Fire Marshal of Louisiana, houses of brick construction will follow the demolishing of frame structures in Lake Charles, La. Owners of frame structures have been notified that they must destroy their houses under an order issued two months ago, but which had been suspended. Eleven frame buildings will be leveled under the initial order, while other owners will be instructed to follow suit.

MICHIGAN

Sentiment is rapidly growing in favor of the construction of a brick road in Berrien county, Mich., from the Niles city limits to the state line, for experimental purposes. The Baker Clay Company of Grand Ledge, Mich., report that they are ready to deliver 775,000 vitrified brick and 500,000 vitrified drain tile to be used in this work.

Among those who have already reserved space in the proposed new quarters of the Detroit Builders' and Traders' Exchange, which will occupy the entire fourth floor of the Penobscot building when completed, are the Detroit Brick Manufacturers' and Dealers' Association, the Mantel and Tile Dealers' Association and the Rochester Sand and Brick Company.

Employes of John A. Mercier, general contractor and a member of the firm of Mercier, Bryan & Larkins, Detroit brick manufacturers, from the sewer digger to the general foreman, shared in the distribution of $5,000 in Christmas presents. The gifts were in money and were given in recognition of the employes' assistance during a highly successful year.

Probably nowhere in the world has general business been better during 1915 than in Detroit, according to local brickmakers. Not only have the automobile factories established new production records, but manufacturers in other lines have kept pace with this mushroom industry. Detroit leads in nearly twenty industries. On every side there has been a demand for skilled labor and this has led to an immense increase in its population, estimated at two hundred families a week. Naturally, new homes have been erected by the hundreds, which has greatly stimulated the brickmaking business, so much so that 1915

(*Continued on page* 946)

SAY I SAW IT IN BRICK AND CLAY RECORD

Haul Your Heavy Loads on this Powerful Truck

KISSELKAR heavy duty Trucks meet every requirement for the successful and economical haulage of heavy materials—brick, paving blocks, tile, sewer pipes and building supplies.

They are sturdily built, powerful trucks, with plenty of reserve strength and backed by years of practical truck building experience.

KISSELKAR TRUCKS

SEVEN SIZES UP TO 6 TON CAPACITY

Ask us to give you the records of KisselKar Trucks in your line. Find out at first hand from their owners how these dependable trucks have cut haulage costs, increased delivery areas, improved service to customers and bettered business generally.

Put your haulage problems up to us and let us suggest the type and size of truck that will give you greatest satisfaction.

The new KisselKar Truck portfolio with five hundred illustrations will be sent you when you say the word.

Kissel Motor Car Company
568 Kissel Avenue, Hartford, Wis.

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn.; New Haven, Troy, Norfolk, Providence, Marshalltown, Ia.; Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

MARTIN ROCKING-SHAKING GRATES

For Steam Boilers

Just why you should use them—

Where plain grate bars are used, a serious loss of fuel occurs from the necessity of constantly opening the fire doors to slice the fire.

This loss is prevented by the use of

Martin Grates

The fuel bed is kept perfectly clean, therefore perfect combustion of the coal results.

The grate will burn any grade of coal perfectly, including the cheapest slack and screenings.

In Martin Grates

The bars run **lengthwise** of the furnace—they **cannot** be left in position to catch the scraper when cleaning.

They have no fingers that can project into the fuel bed—to be burned off.

They cannot break or warp due to unequal heat expansion.

They cannot waste fuel when shaking.

They are easily adjusted for any size of coal.

They are built for durability—averaging over 80 lbs. per sq. ft. of surface.

They Are Fool Proof

Some of the finest—best managed clay plants in existence have used Martin Boiler Grates for years. Witness the partial role.

The Nelsonville Brick Co., Barr Clay Co., Lehigh Sewer Pipe & Tile Co., Ironclay Brick Co., National Fireproofing Co., Bach Brick Co., Wabash Clay Co. —— and dozens of others of equal importance.

The TIME to write us, is TODAY.

THE MARTIN GRATE CO.
347 S. Dearborn Street - CHICAGO, ILL.

Try a
Cyclone Grate

on 90 Days' Free Trial

We have so much faith in our grates—they have proven such fuel-savers to other brick plants, that we are willing to make you this proposition:

We will install a Cyclone Grate in any brick plant, guarantee to save you in fuel, to increase evaporation, and guarantee them free from repairs for one year. If at the end of 90 days we have not proven what we guarantee, we agree to remove them and replace your old grates without cost to you.

Could Anybody Be More Fair?

Six Reasons Why You Should
Install Cyclone Grates:

1. Even distribution of draft.
2. No fuel gets into ash pit.
3. Locks level.
4. Burns cheap fuel.
5. No fingers to burn off.
6. Impossible to warp.

Write for catalog and full details.

Cyclone Grate-Bar Co.
Buffalo, N. Y.

will be remembered as the best year local brick manufacturers and dealers have ever experienced. Detroit is now entering upon what promises to be the greatest year of all. Signs point to 1916 being the record twelve months and Detroit is bound to have more than its share.

MINNESOTA

The Winnebago (Minn.) Hollow Block and Tile Company reports business as being very good. The company is building a new clay storage shed to hold a sixty days' run of the plant.

The Jackson (Minn.) Tile and Brick Company reports the drain-tile business as being exceptionally good. The company is planning to install a clay haulage system at its plant sometime during the winter.

The Zumbrota (Minn.) Clay Manufacturing Company has installed a larger brick and tile machine than formerly used to permit the manufacture of all sizes of hollow-tile. A new pulverizer for grinding clay has also been added to the plant's equipment, while it is planned to build a small addition to the drier, probably during the winter months. This company has added a line of silo tile to its products, replacing the regular straight building tile that it sold for this purpose. With the new machinery, the company expects to turn out better ware and to be able to get into the market with all that it demands in the way of sizes.

MISSOURI

L. W. LaDow, manager of the Fredonia Brick Company, Kansas City, Mo., has just recovered from a severe illness.

Information reaching Kansas City, Mo., is to the effect that specifications totaling $150,000 for brick paving in the smaller cities of Kansas has been changed to read asphalt as a result of the inability of plants thruout the state to fill orders. Some plants, it is understood, have their capacity contracted for the next five or six months.

Kansas City (Mo.) brick dealers have been busy thruout November and the first half of December supplying material for the erection of apartment buildings thruout the city. Altho in that time no large contracts calling for construction work totaling more than $15,000 or $20,000 have been let, the rush of apartment building has kept the firms busy.

Building in Kansas City (Mo.) during the first eleven months of 1915 showed a substantial increase over 1914. Last year 3,137 permits, representing $9,981,370, were issued, as against 3,244, totaling $10,054,930, up to December 1 of this year. These figures were made public by F. B. Hamilton, superintendent of buildings. The total of new work in November of this year was $724,115, an increase of one hundred and twelve per cent over the same month a year ago.

NEBRASKA

The Western Brick and Supply Company of Hastings, Neb., is planning to build an addition to its drier, also the erection of a new kiln. In an effort to widen its market, the company has been trying particularly to reach the farmer, personal letters together with various kinds of literature being used for this purpose. This company is now considering the installation of a fol-

(*Continued on page* 948)

SAY I SAW IT IN BRICK AND CLAY RECORD

THEW SHOVELS

Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

THEN JUST ASK

for Circular 22 A. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown, and other information incorporated of a character that will interest all clayworkers.

Thew Shovel which saves wage of 10 men ever da

There are now

Over 300 Thew Shovels in the Clayworking Industry

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew features of particular advantage in this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

SIGN AND MAIL OR USE FOR MEMORANDUM

The Thew
Automatic
Shovel Co.
Lorain, Ohio

Send me circular 22 A, giving cost facts for digging clay and shale and other information of interest as advertised in "Brick and Clay Record."

Name..

Address..

THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO

GANDY

Put in a Gandy Drive

Just at this time, with the price of leather and rubber belting soaring upward, it is more than ever advisable to try

GANDY

Stitched Cotton Duck Belting

Consider the fact that for 37 years GANDY Belts have been steadily growing in popularity. They must have given the best of satisfaction.

This satisfaction is due to a combination of satisfactory service and low price. Gandy is water, oil and dust proof, grips the pulleys with a hard, slipless hold, and *wears;* while its price is much less than you pay for leather or rubber.

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New York Office
36 Warren Street

SAY I SAW IT IN BRICK AND CLAY RECORD

Are You Going to Change

Your Burning System—

Are You Satisfied

With Results of This Year

?

There is one system that is proving satisfactory, year after year of use, in many plants—

The Hook Patent System

of Kiln Burning

combines many features of merit impossible in the ordinary kiln design. It approaches nearest to perfection of any periodical kiln. It is inexpensive to install—but the returns to you are big. It consumes less coal—it watersmokes top and bottom equally well—it burns uniformly—and it does it all in considerable less time.

Hook Patent Kiln Co.

Vigo, Ohio

Canadian Office
250 Dufferin Street Toronto, Ont.

low-up system for its inquiries, hoping in this way to sell a good many prospects who might otherwise be lost.

NEW YORK

The Consolidated Brick Company, Horseheads, N. Y., reports the completion of several new kilns at its plant; also the addition of hollow-tile to its line of ware.

A considerable increase in the number of common-brick sold in Rochester, N. Y., is shown for the month of November just passed, when compared to the corresponding month of 1914, according to E. J. Rich of the Rochester Brick and Tile Manufacturing Company. The company's yards are closed for several weeks during each winter, but this year it is expected that the shut-down will be for a shorter period than usual. Building operations, which directly influence the sale of brick, were slow during the summer, but showed an increase for November of more than one hundred per cent over the same period last year.

VIRGINIA

Actual work on the construction of the new plant for the Staunton (Va.) Brick Company has been started. The machinery has been purchased and will be ready for shipment within a few weeks. Mr. Houck of Bristol, Tenn., who is heavily interested in the plant, stated recently that its success looked more certain now than ever before, and that the work of building the plant would be pushed as rapidly as possible so as to be able to ship brick early in the spring of 1916.

WASHINGTON

The Western Clay Products Company, Everett, Wash., has been incorporated with a capital stock of $2,000, by Will H. Peterson, Munsey A. Blair and Emma Roberts.

The Denny-Renton Clay and Coal Company of Seattle, Wash., is now delivering terra cotta for the Times building and the Puget Sound News building, both in Seattle.

C. T. W. Hilister, formerly Pacific coast manager for the Washington Brick, Lime and Sewer Pipe Company of Spokane, Wash., is now with the Oregon Portland Cement Company, which is equipping a plant near Portland, Ore.

The Idaho Lime Company and F. T. Crowe and Company of Spokane, Wash., have effected a consolidation of their sales departments under the name of the Consolidated Supply Company, with offices at 1310 Ida Avenue. A complete line of brick and other building materials will be carried.

WEST VIRGINIA

At Charles Town, West Va., the plant of the Valley Brick Company, which was built in 1910 at a cost of about $30,000, was recently sold at public sale to C. L. Robinson, of Winchester, Va., for $6,700.

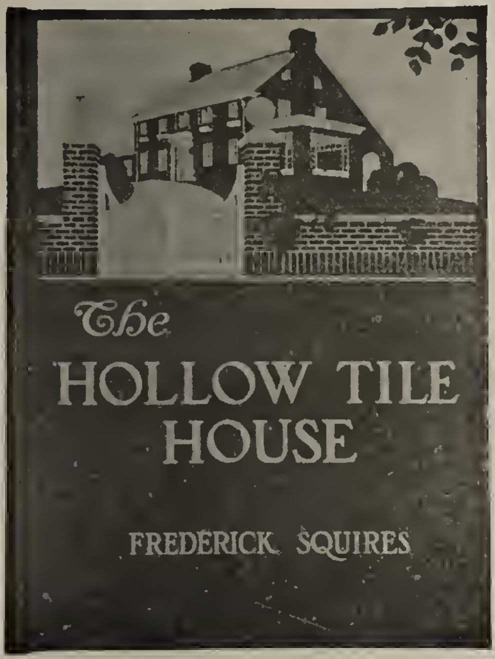
WISCONSIN

The first brick pavement in La Crosse county, Wis., will be laid next year, according to present plans. The county board has made provisions for an extensive paving program during the coming year, of which the construction of the new brick road is a part.

Following the success of an experiment in the making of brick from a clay deposit two miles north of Marshfield, Wis., the Marshfield Brick and Tile Company which was recently incorporated, has decided to put up a modern brick plant with a daily capacity of 40,000 brick. A temporary plant was used in experimenting with the clay. According to present plan the permanent plant will be completed and ready for operation on April 1st, 1916.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

If you make, sell or use
Burned Clay Fireproofing



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THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

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PRICE $2.50

Book Department

Brick and Clay Record
CHICAGO

THE
UNDERWOOD
PRODUCER GAS
BURNING SYSTEM
(Patented)

—is a positive factor in the clay-products field today because after several years of daily use in plants making various kinds of ware, it has demonstrated its real practicability.

—and you know, that to be a success, a machine or a method must, in daily practice, **produce a profit** in proper relation to the cost of installation.

—we have facts and figures to prove to you that the UNDERWOOD SYSTEM will do all we claim for it—why not ask us to send them?

RIGHT NOW is the best possible time to determine that you will cut out inefficient and costly burning methods, and adopt that one which will increase your profits.

If you are open-minded we will take our chances as to our ability to convince you.

THE MANUFACTURERS EQUIPMENT COMPANY
"Everything for the Clayworker"
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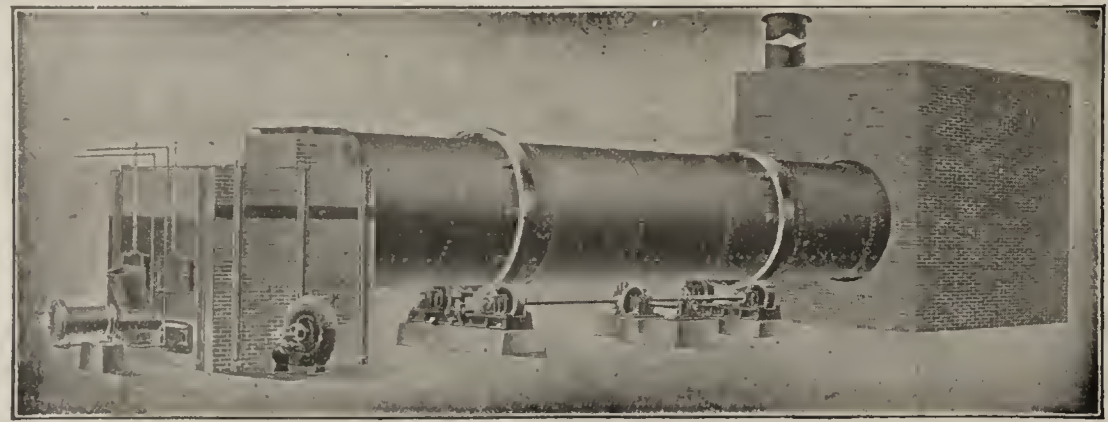
GEO. H. SMITH, Western Representative
203 Sheidley Bldg., Kansas City, Mo.



ROTARY CLAY DRYER

DRY YOUR CLAY
AT LOW COST
YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON
It Assures Uniform Product
YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.
American Process Co.
68 William Street
NEW YORK

THE CHASE DRYER CARS
With patented flexible and reversible boxing and roller bearings
The *Best Equipment* is the Equipment that gives you the *Best Service*
The Chase Fdry. & Mfg. Company
Columbus, Ohio

You will do better with an OSGOOD

The OSGOOD "18," ¾ yard Traction Revolving Shovel will mix the different stratas of your supply material with every lift of the bucket. It will enable you to get the material quicker, better and at much less expense.
We shall be pleased to give full description and detail information upon application.

THE OSGOOD COMPANY, MARION, OHIO
EASTERN OFFICE, 51 State St., Albany, N. Y.

Style No. 12

A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Directory of Clay Products Manufacturers

THE Clay Products Directory in the following pages is issued as a result of the many inquiries received by "Brick and Clay Record" during the year for the names and addresses of manufacturers of burned clay.

Many of these inquiries come from manufacturers of clay products, who, seeing an opportunity of boosting a clay product they, themselves, do not manufacture, desire to see it used to the exclusion of cement, lumber or some other material.

Other inquiries come from architects, contractors and engineers, and quite often lead to a considerable sale.

This directory, therefore, is in response to a real demand and we feel it calls for practical co-operation among clayworkers.

If you really desire to see the clay product industry as a WHOLE take its position at the head of all competing materials you must BOOST.

The boost must begin at home, of course, like all well organized charity, but every time you have a minute to spare you must put in a GOOD word for the clayworker in OTHER lines. Good deeds, like bread cast on the waters, come back to you threefold.

When You Send a Tip to Anyone in the List Tell Them You Saw Their Advertisement in "Brick and Clay Record."

Index of the Clay Product Directory

BLOCK OR TILE (HOLLOW)

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Alton Brick Co., Alton, Ill.	4
Keller Brick Co., The, Cuyahoga Falls, O.	8
Metropolitan Paving Brick Co., Canton, O.	5

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Alliance Clay Pro. Co., Alliance, O.	5
American Enameled Brick & Tile Co., New York, N. Y.	8
Belden Brick Co., Canton, Ohio	8
Bradford Pressed Brick Co., Bradford, Pa.	6
Hocking Valley Pro. Co., Columbus, O.	8
Hydraulic Press Brick Co., St. Louis, Mo.	6
Kimbell Brick Co., S. S., Chicago, Ill.	8
Metropolitan Paving Brick Co., Canton, Ohio	5

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Chicago Retort & Fire Brick Co., Chicago, Ill.	4
Davis Fire Brick Co., Oak Hill, O.	3
Dover Fire Brick Co., Cleveland, O.	3
Evans Clay Mfg. Co., Uhrichsville, O.	3
Maurer & Son, H., New York City	3
Mexico Brick & Fire Clay Co., Mexico, Mo.	3
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Alton Brick Co., Alton, Ill.	4
Barr Clay Co., Streator, Ill.	4
Bessemer Limestone Co., Youngstown, O.	5
Big Four Clay Co., Canton, O.	6
Carlyle Paving Brick Co., Portsmouth, O.	6
Danville Brick Co., Danville, Ill.	5
Deckman-Duty Brick Co., Cleveland, O.	4
Globe Brick Co., East Liverpool, O.	6
Harris Brick Co., Cincinnati, O.	6
Hocking Valley Brick Co., Columbus, O.	5
Metropolitan Paving Brick Co., Canton, O.	5
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Pittsburg Tile Mfg. Co., E. Liverpool, O.	8

TILE (PROMENADE)

Pittsburg Tile Mfg. Co., E. Liverpool, O.	8

Trade Names Now in Use

on Face Brick and Other Clay Products

If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Acadia—Nova Scotia Clay Works, Halifax, Can.
Adel Irontile—Adel (Ia.) Clay Pro. Co.
Afghan—Crawfordsville (Ind.) Shale Brick Co.
Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. & Tile Co.,
Antique—The Everhard Co., Massilon, Ohio.
Arabian—Dubois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Art-Tex.—American Fire Brick Co., Spokane, Wash.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Athena—Hocking Valley Fire Clay Co., Nelsonville, O.
Aztec—Acme Pressed Bk. Co., Fort Worth, Tex.
Beaver—Nova Scotia Clay Wks., Halifax, Can.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Press. Brick Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Bradford Pressed Brick—Bradford (Pa.) Pres'd Bk. Co.
Bradford Red—Bradford (Pa.) Pressed Bk. Co.
Bradford Ruffs—Bradford (Pa.) Pressed Bk. Co.
Brocade—Euclid Builders Supply Co., Cleveland, O.
Bronze Brown Mission—McArthur (O.) Bk. Co.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Brown Stone—Shepherd Bros., Columbus, Ga.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Buff Velvet—W. B. Ferris Brick Co., Columbus, O.
Caledonian—Fiske & Co., Inc., Boston and New York.
Calico—Adel (Ia.) Clay Pro. Co.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chinchilla—Hydraulic-Press Bk. Co., St. Louis, Mo.
Chocolate Special—Midland Bk. Co., Peru, Kan.
Citadel—Citadel Brick & Paving Block Co., Ltd., Quebec.
Cla-Rox—Sioux City (Ia.) Brick & Tile Co.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, Ohio.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Colonial Reds—Crawfordsville (Ind.) Shale B. Co.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Cravenette—Standard Brick Co., Macon, Ga.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Cubans—Euclid Builders Supply Co., Cleveland, O.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Davenport—Davenport (Ia.) Brick & Tile Co.
Diamond C—Cook, E. L., State Farm, Mass.
Denison—Mason City (Ia.) Brick & Tile Co.
Dixie Brick—Sumter Brick Works, Sumter, S.C.
Dubltex—The Everhard Co., Massillon, O.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Co., Danville, Ill.
Everhard—Everhard Co., Massillon, O.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fabrick—Far West Clay Co., Tacoma, Wash.
Facetone—Sioux City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Pro. Co., Mineral City, O.
Fisklock—Fiske & Co., Inc., Boston and New York.
Flash—W. B. Ferris Brick Co., Columbus, O.
Glenboig—Alexander Gibb, Montreal, Que.
Grey Velvet—W. B. Ferris Brick Co., Columbus, O.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Grid—Fiske & Co., Inc., Boston and New York.
Gun Metal Mission—McArthur (O.) Bk. Co.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottry—B. Mifflin Hood Brick Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company. St. Louis, Mo.
Hypo—Hebron (Ind.) Clay Pro. Co.
Hy-tex—Hydraulic-Press Bk. Co., St. Louis, Mo.
Imperial—Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Irontile—Adel (Ia.) Clay Pro. Co.
Load Bearing Tile—Mason City (Ia.) Brick & Tile Co.
Keim—Keim Brick & Tile Co., Louisville, O.
Klay-Kraft—Mason City (Ia.) Brick & Tile Co.
Mason City—Mason City (Ia.) Bk. & T. Co.
Medal Block—Deckman-Duty Brick Co., Cleveland, O.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Mingled Shades Velvet—W. B. Ferris Brick Co., Columbus, O.
M-i-t-u-s-a—Brush-McCoy Pottery Co., Zanesville, Ohio.
Mission—McArthur (O.) Brick Co.
Monk Brown Mission—McArthur (O.) Bk. Co.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Navajo—Puritan Brick Co., Hamden, O.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nibatco—North Iowa Brick & Tile Co., Mason City, Iowa.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old English Mission—McArthur (O.) Bk. Co.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion (Ind.) Brick Wks.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa.
Persian—Acme Brick Co., Cayuga, Ind.
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Pompeian—W. B. Ferris Brick Co., Columbus, O.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., East Liverpool, O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Co., Macon, Ga.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Regal—Euclid Builders Supply Co., Cleveland, O.
Rex Matt—Bryant Sup. Co., Kansas City, Mo.
Ridgway—Ridgway (Pa.) Brick Co.
Rocktex—Citadel Brick & Paving Block Co., Ltd., Quebec.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Rose Persian Mission—McArthur (O.) Bk. Co.
Royal Face Brick—Decatur (Ill.) Brick Co.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugby—Standard Brick Co., Evansville, Ind.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico—Continental Brick Co., Aledo, Ill.
Rustique Oriental—Martinsville (Ind.) Brk. Co.
Saraband—Hydraulic-Press Bk. Co., St. Louis, Mo.
Savage—Federal Clay Product Co., Mineral City, Ohio.
Scotia—Nova Scotia Clay Works, Halifax, Can.
Seal Brown Mission—McArthur (O.) Bk. Co.
Shale-Tex—Streator (Ill.) Brick Co.
Shamrock Mission—McArthur (O.) Bk. Co.
Shor-Wil—Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sioux—Sioux City (Ia.) Brick & Tile Co.
Sparta—Federal Clay Product Co., Mineral City, Ohio.
Speedway Block—Alliance (O.) Clay Prod. Co.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Trafford Reds—Houston Bros. Co., Pittsburgh, Pa.
Tuillery—Sioux City (Ia.) Brick & Tile Co.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turkish Mission—McArthur (O.) Bk. Co.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Turko—Rochester (Pa.) Clay Products Co.
Twin Tex—Sheldon Brick & Building Supply Co., Urbana-Champaign, Ill.
Velour—Hydraulic-Press Brick Co., St. Louis.
Velvet—W. B. Ferris Brick Co., Columbus, O.
Velvet-Nap—W. B. Ferris Brick Co., Columbus, O.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vitrified Velvet—Adel (Ia.) Clay Pro. Co.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.
Wooster Paver—Wooster (O.) Shale Brick Co.

Fire Brick Facts For Kiln Builders

Do not overlook the quality of Fire Brick used in inner walls, crowns and fire arches of your kilns; this is all important. When fire brick begin to give away the whole kiln is impaired.

No brick construction will stand under strain of gradual contraction account of poor quality fire brick.

Consult us in advance of placing your orders.

Davis Fire Brick Co. Oak Hill, O.

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

Jos. Soisson Fire Brick Company

General Office, **Connellsville, Pa.**
Sales Office, **Bolivar, Pa.**
J. B. Hammond, Sales Manager

Mexico Brick & Fire Clay Co.

Mexico, Mo.

Manufacturers of

High Grade Fire Brick

and Special Fire Clay Shapes

Fire Brick and Floor Tile for Brick and Tile Kilns a Specialty

---

Established 1856

HENRY MAURER & SON

Manufacturers of

High Grade Fire Brick

Our "Henry Maurer" No. 1 quality Fire Brick is recognized throughout the country as a standard article. We make all shapes and sizes for kiln-work and all other requirements. Catalogues on application. We solicit your inquiries.

Office: 420 East 23rd St. New York, N. Y.

Works: Maurer, N. J. (On L. V. R. R. and C. R. R., N. J.)
Philadelphia Office: Pennsylvania Building

We Can Save You Money, Time and Trouble on Fire Brick

BECAUSE OF

Quality, Price and Service

Freight Rates on all R.R.'s in UNITED STATES and CANADA

A Trial Shipment Will Convince You

WRITE US

ALSEY BRICK & TILE COMPANY
ALSEY, ILLINOIS

Southern Fire Brick & Clay Co.

Fire Brick for Kilns.

High grade fire brick, cupola blocks and fire clay.

Write for prices.

Office, 1203 Chamber of Commerce Bldg., Chicago, Ill.

The Evans Clay Manufacturing Co.

Uhrichsville, Ohio

- Standard Sewer Pipe
- Double Strength Pipe
- Wall Coping
- Chimney Tops
- Building Blocks
- Flue Linings
- Stove Pipe
- Thimbles
- Fire Brick
- Drain Tile

And other Fire Clay Products

FIRE BRICK

DOVER FIRE BRICK CO.

Incorporated 1870

—— MANUFACTURERS OF ——

Dover and Buckeye Fire Brick

Unexcelled for Kiln Purposes

509 Cuyahoga Bldg. Cleveland, Ohio

AJAX

FIRE BRICK

Two of the many hundred kilns built of these famous brick. Are you using them?

Write for price and catalogue.

Chicago Retort & Fire Brick Co.

208 S. La Salle St., CHICAGO

Alton Brick Company

Makers of High Quality Brick for

Roadways and Permanent Buildings

Repressed and Wire-Cut-Lug Block.

ALTON, ILLINOIS

Murphysboro Paving Brick Co.

Manufacturers of

THE CELEBRATED EGYPTIAN PAVING BLOCK

THE BLOCK THAT STANDS THE TEST

Prices and samples furnished upon application

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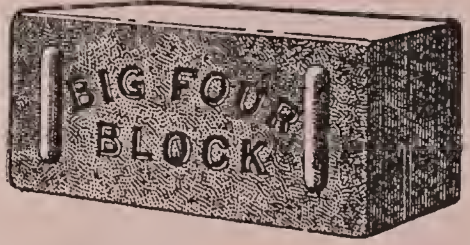

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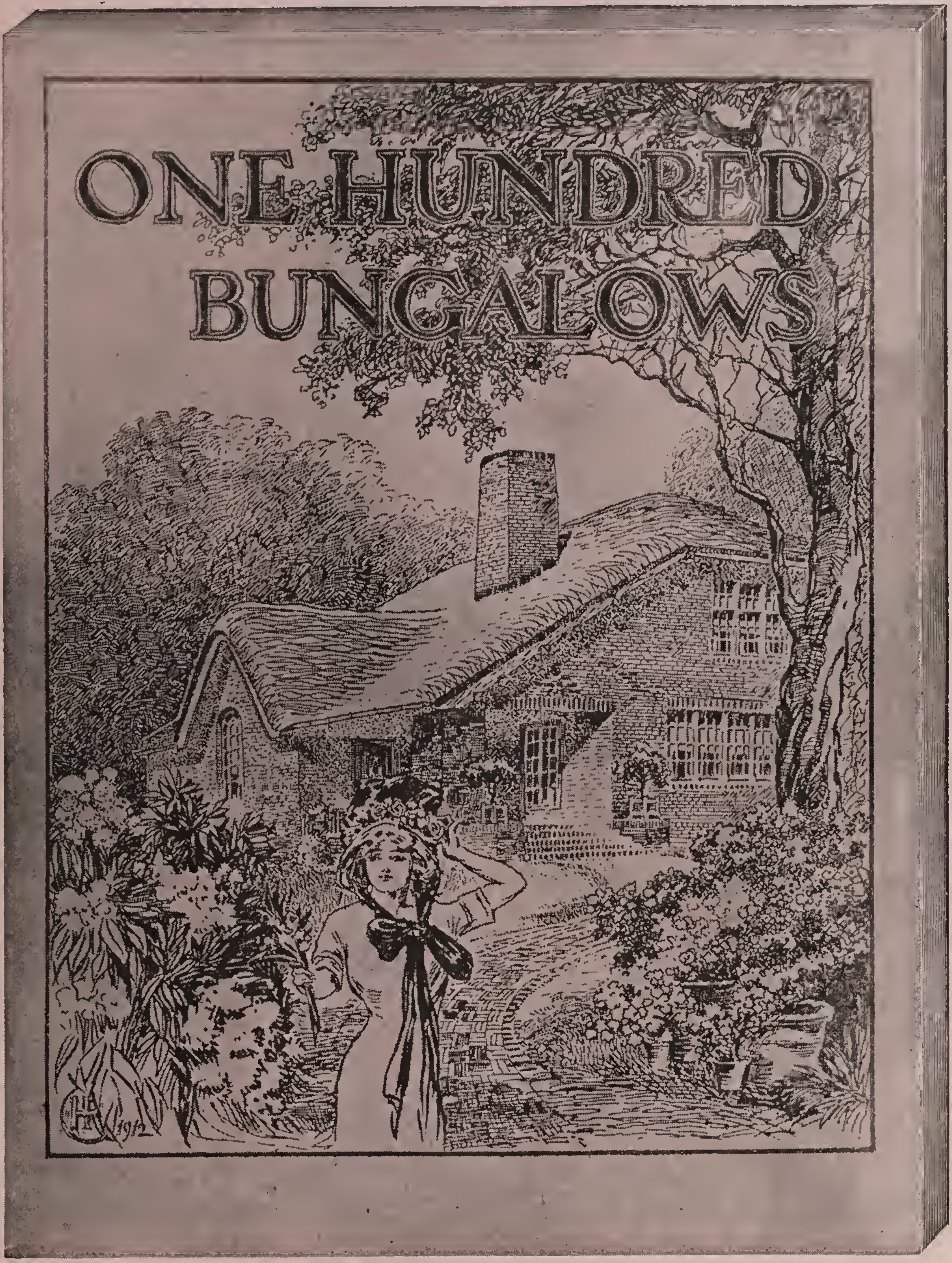

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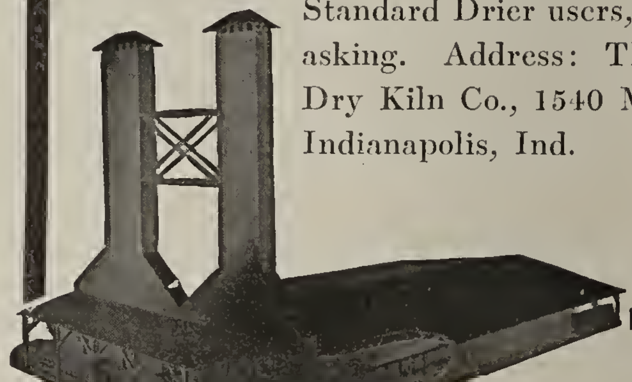

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445 Plymouth Court, Chicago

A. F. Greaves-Walker's "Belt Talk" is Sound Advice

This is what he said in the December 7 issue of Brick and Clay Record:

> "The amount of money clayworkers lose thru shut-downs to take-up belts, repair broken lacing, and thru "slipping," is appalling......the best—the highest-priced are none too good......many plants are only prevented from getting "capacity" thru belt troubles.

This is just what we have been preaching to the clayworking industry for twenty-five years, and we are proud of our record of "converts" to

TRADE **SAWYER** MARK Registered **BELTS** *and* TRADE **SAWYER** MARK Registered **SERVICE**

Our many hundreds of customers in this field are our friends, too, because in actual every-day service SAWYER belts have proven that they will stand the severe requirements of clay plants—they resist grit and abrasive material—they do not slip—they transmit a constant and uniform power.

THE BRICKMAN'S STANDARD FOR 25 YEARS

SAWYER BELTING COMPANY, CLEVELAND OHIO, U. S. A.

STITCHED CANVAS BELTING

Here is a Kiln Built with Common Sense

The Schaffer Semi-Continuous Kiln is revolutionary only in that it follows Nature's Laws. The average kiln builder gets confused in the maze of dampers, tunnels, forced draft systems, etc., and before he gets through he has upset **Natural** Laws and seeks to make fuel and heat do **impossible** things.

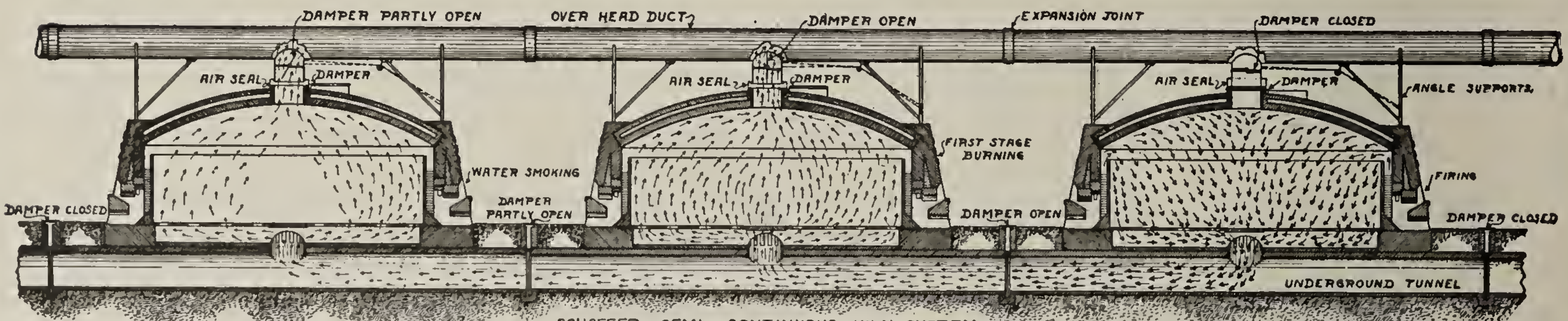
The Schaffer Semi-Continuous Kiln utilizes well-known principles

There is no magic about it—no hocus pocus—now-you-see-it-now-you-don't—stunts. Just plain, common sense, mixed with practical experience and engineering ability.

We have a pamphlet that tells all about this sensible kiln—SEND FOR IT

The narrow confines of this ad will not permit us to tell you just HOW and WHY the Schaffer Semi-Continuous Kiln is built, but we have a pamphlet that tells the story briefly, but completely. We would be pleased to send you a copy.

THE SCHAFFER ENGINEERING & EQUIPMENT CO., Inc, Tiffin, Ohio



SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

Patent Allowed

SAY I SAW IT IN BRICK AND CLAY RECORD

Distributing Material to Storage Pile or Spoil Bank

THE LOOP LINE TRAMWAY

with its continuous procession of barrows may be readily adapted to the distribution of material anywhere along the line by the simple expedient of equipping the barrows with drop bottoms, and the track with a movable tripping device, which automatically unlatches the bottoms at any desired point. This is but one of many services to which LOOP LINE TRAMWAYS are adapted.

Let Us Help You With Your Problem!

AMBURSEN COMPANY, 61 Broadway, New York City

Moroney Says!—

"That the real quality of any clay product is born only of right methods of manufacture."

We have sold clay-working machinery for 30 years; giving our customers the benefit of all the resources of mechanical improvements and results of scientific methods of clay-working during this time.

Our line embraces: DRY PRESS, STIFF MUD and SOFT MUD Processes of brickmaking.

We recommend the process best adapted to your material and market conditions.

WE CARRY A FULL LINE OF BRICK YARD SUPPLIES

Chicago Brick Machinery Company

20 West Jackson Blvd. Chicago, Ill.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Reduced Operating Costs

Reduced cost is what every brick manufacturer wants now, when the demand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

Westinghouse Electric & Manufacturing Co.

Sales Offices in all Large American Cities

East Pittsburgh Pennsylvania

Your Copy for the

Third Annual Clay Products Directory

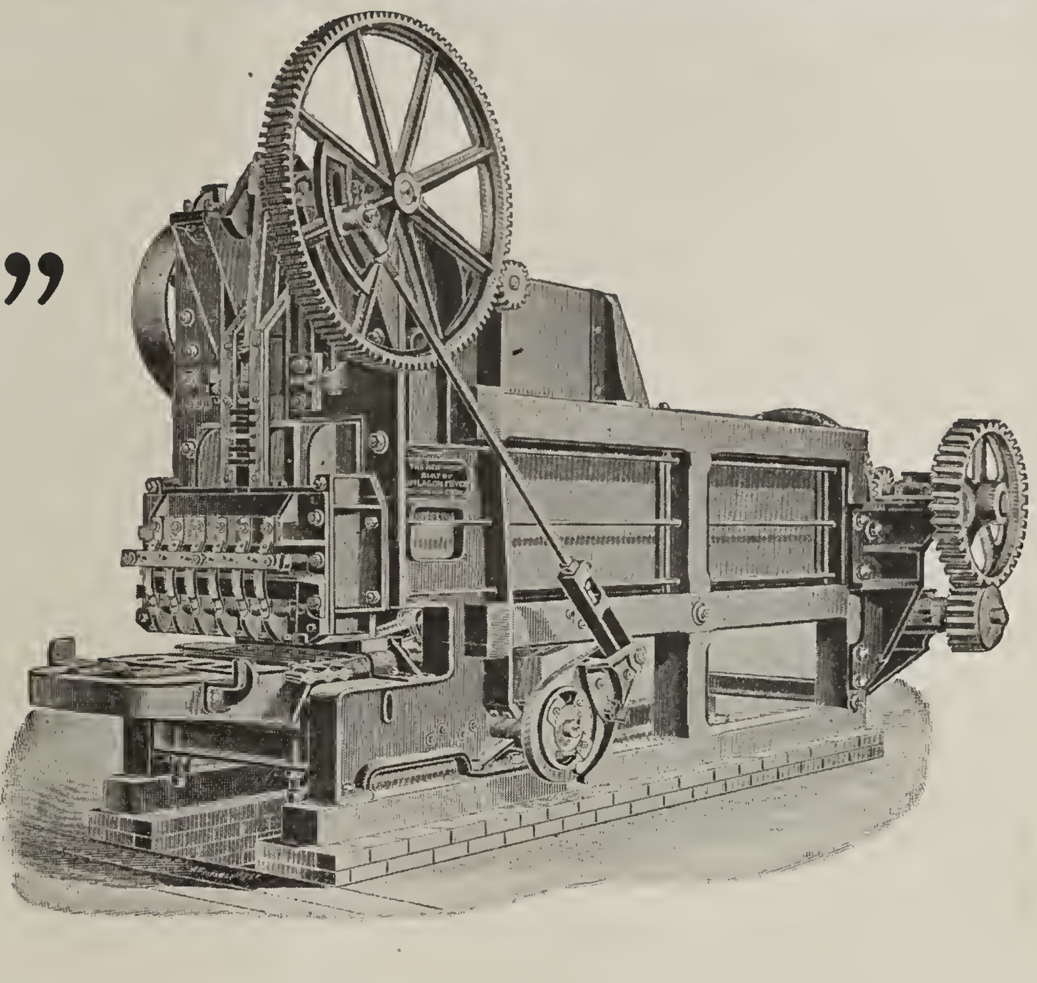
has not yet reached us—don't delay longer. It isn't necessary for you to lay out an ad—just send us your letterhead—we'll write your copy.

REMEMBER—the big NEW YEAR'S ISSUE, in which this Directory will appear, goes to building exchanges, architects, contractors and others who can help you to expand your market.

SEND YOUR COPY TODAY

BRICK AND CLAY RECORD CHICAGO

The "New Haven"



One Million Brick Per Month for Twenty Years—Day in and Out—is An Unusual Record—But Not for the "New Haven!"

In constructing the "NEW HAVEN" we have put in *everything* that makes for *efficiency, quality* and *speed* in turning out Brick. That we have succeeded—ask others—those who have used it for over twenty years and are *still* using it with the best of service and unimpaired efficiency.

The "NEW HAVEN" Soft-Mud Brick Machine is a marvel to do the work that it *does*—to last as long as it *does!*—and satisfy as long as it *does!*

While the "NEW HAVEN" is somewhat higher in price than some others, it is remarkably better in *service*. The repairs that you *don't* have to put into the New Haven offset the difference in price over and over—besides you have a Brickmaking Machine that doesn't have to be watched—all it's got to be is operated—and it will turn out profits as fast as it turns out your brick. Write for prices and complete information. Both will please you.

The Eastern Machinery Company

New Haven, Conn.

SAY I SAW IT IN BRICK AND CLAY RECORD

Classified Advertisements

WANTED—HELP.

HELP WANTED—For a large, new face-brick plant in North Dakota. Healthy climate, moderate expense of living. Good wages to capable men regardless of nationality, especially setters, wheelers, firemen, off-bearers, shaders, sorters, etc. Opportunity for advancement. In application state age, whether married or single, experience, and wages expected. Richard B. Hoehne, care of "Brick and Clay Record." 12-2-TF

WANTED—Practical burner for shale brick plant; good wages and permanent job for man that can give results. Address 12-Pennsylvania, care of "Brick and Clay Record." 12-2P

WANTED—Fire-brick setter; steady work. Address: 12B, care of "Brick and Clay Record." 12-TF

WANTED—Several sorters for pressed brick and rough-face brick. Steady work, good pay. Address: 12-BE, care of "Brick and Clay Record." 12-2-1P

SPECIAL OPENINGS.

WAR MAKES OPPORTUNITIES

We represent a client who controls about 250 acres of land on the east bank of the Hudson River, within 45 miles of the Battery.

The river channel, over 60 feet deep, runs close to the shore. The entire property can be purchased for less than $100,000. Labor plentiful and cheap. Here is an unusual opportunity for the manufacturer who needs water front.

For full particulars address: L. Ward Prince, Country Life Exposition, Grand Central Terminal, New York City. Brokers protected. 8-TF

WANTED—POSITIONS.

POSITION WANTED—Practical brick man desires change, at present employed, open for position after January 1st. Am practical from pit to building, face-brick or common brick; dry press or stiff-mud process. Practical burner. Can handle any kind of labor. Hustler and can get results. Desire to get with firm of large capacity. Address: 12-BF, care of "Brick and Clay Record." 12-2-1

WANTED—Position as manager or superintendent brick manufacturing plant. More than 15 years' practical experience. Good references; employed, but desire change. Address: 12-BH, care of "Brick and Clay Record." 12-2-1P

WANTED—Position as superintendent of paving, brick or tile plant, by experienced man from clay pit to office. No. 1 burner. Best reference. Address: 12-M, care of "Brick and Clay Record." 12-2P

WANTED—Position as yard fireman or setter. Married man, strictly temperate. A-1 references. Address: 12-BC, care of "Brick and Clay Record." 12-2-1

WANTED—EQUIPMENT

WANTED—Sand-lime brick machinery: One or two hardening cylinders, 78 in. diameter, 135 lb. steam pressure, any length. Twenty to fifty sand-lime brick cars, 38 in. gage. Also one small tube mill suitable for experimental work. Address: 12-BM, care of "Brick and Clay Record." 12-2-3

WANTED—30 double-deck cars, cast frame and standards preferred. Also automatic end brick cutter, Steele & Sons latest pattern. Give full particulars in first letter. Spot cash. Address: 11-BB, care of "Brick and Clay Record." 11-2TF

WANTED—50 second-hand steel double deck dryer cars, 24 inch gage; automatic side-cut brick table, and internally fired 150 h. p. boiler, 125 lbs. steam pressure, marine type desired. Address: 12-BA, care of "Brick and Clay Record." 12-2-1

WANTED — Four-mold (second-hand) brick press. Must be in first-class condition. Give full particulars and lowest price. Address: American Brick Co., Lincoln, Ill. 12-2-2P

WANTED—2,500 steel pallets, 10x34 inches. Address: Thornton Bros. Brick Co., Rudyard, Mich. 12-2-1P

WANTED—Second-hand 5 to 7-ft. dry pan. Also plunger machine. W. P. McFarland, Route 62, Pulaski, Pa. 12-2-1P

FOR SALE—SAND-LIME PLANTS

FOR SALE—Cheap. A complete sand-lime brick plant; tube mill, dryer, English rotary press and one 6,000 gallon steel oil tank. Will sell as a whole or any part of it. Write Alhert H. Mueckler, Trustee, Manistce, Mich.

FOR SALE OR RENT—Modern sand-lime brick plant at Michigan City, Ind. For particulars write F. J. Hinkamp, 5452 Lake Park Ave., Chicago, Ill. 12-2-2

FOR SALE—CLAYWORKING PLANTS.

FOR SALE—Complete brick plant: 50 cars, 20 tons small rail, boiler, engine, dry pan, one brick and tile machine, repress, hoist, building, all equipment necessary, 32 acres clay and shale. This plant was run less than a year and has been closed down for some time. We will sell it and give title to the clay and shale for $1,500.00. Topper Bros., Columbus, Ohio. 12-2-2

FOR SALE—A dry-press brick plant, 120 acres of shale and fire-clay land, underlaid with coal; also 18 acres in townsite, together with numerous buildings, kilns and equipment. For further information, address: John C. Bronaugh, 2331 Grand Ave., Kansas City, Mo. 11-2TF

FOR SALE—Fully equipped brick plant located at Owensboro, Ky. Only machine plant in this city of 17,000 people. Reason for selling: am engaged in Government Building Construction. Bargain. R. P. Farnsworth, New Albany, Ind. 11-2-8

FOR SALE—Mendota tile factory, all in good condition. Splendid shipping facilities over three main railroads. Also, 2½ acres fine land, house and barn, for sale. Call on or write S. B. Stare, Mendota, Ill. 11-2TF

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE CHEAP TO SAVE MOVING.

One Hercules Special soft-mud brick machine.

One Brewer conical smooth roll crusher.

One disintegrator.

One New Departure brick and tile machine, with dies to 15 in.

One board delivery cutting table.

One Anderson 4-mold dry press.

One Drake No. 2 stiff-mud brick machine.

F. R. Carter, 119 Bridge St., Peoria, Ill. 12-4

FOR SALE—Practically new; one 40 h. p. and one 60 h. p. high pressure boiler, one 100 h. p. slide valve engine, Brewer brick and tile machine, Fayet's end-cut cutting table, pulleys, shaft and boxing, Pulsometer steam pump No. 3, 12,000 ft. double strength steam pipe. Address: W. E. Lyon & Co., Carthage, Ill. 12-2-TF

FOR SALE—Cheap, located in Philadelphia, Pa., one Freese Intermediate Union brick machine, one No. 16 pattern rotating automatic cutter complete—capacity five thousand to six thousand brick per hour. Machines practically new. Have not made over one million brick. Address: 12-BD, care of "Brick and Clay Record." 12-2-1P

FOR SALE OR TRADE—Complete equipment for a stoneware pottery. One Potts soft-mud machine and one Eagle repress for sale. Address: 12-BP, care of "Brick and Clay Record." 12-2TF

FOR SALE—1,600 ft. new 12 lb. rails, two almost new bottom dump cars and two frogs. Address: 12-BB, care of "Brick and Clay Record." 12-2-1

FOR SALE—Arnold-Creager SSS soft-mud brick machine and mold-sander; 7,000 flat and 9,000 leg pallets, 10x34 galvanized steel with ⅝-inch rolled edge. Address Sphar Brick Company, Maysville, Ky. 12-2

FOR SALE—One No. 9 Brewer tile mill, two Atlas 35 h. p. engines, hoist, automatic cutting table, some good wood-split pulleys, belts and other machinery. Address Thompson Bros., Rolfe, Iowa. 12-TF

FOR SALE—Buckeye traction steam ditching machine, at one-fourth list price. D. B. Greathouse, Lewisport, Ky. 12-2P

FOR SALE—Two Triplex Smith Vail pumps, 7x8, cost $650.00 each. Our price, $125.00 each. Two Springfield 15 h.p. gas engines, at $125.00 each. 25 boiler feed pumps, most any size, $50.00 to $100.00. One Jeffery crusher from 3 inch to 0, $275.00. Three 15 h.p. boilers, 100 lbs., without fittings, $100.00 each. Large amount of ¾-inch cable, 100 and 200 ft. lengths, three cents per foot. The above material is in A1 shape. Topper Bros., Columbus, Ohio. 12-2-2

FOR SALE—Two Fate Special Premier brick machines, complete with Bensing automatic cutting tables, off-bearing belts, scrap conveyor belt, driving belt and all shafting and pulleys. One machine new, other machine slightly used and in A-1 condition. Also, two rotary dryers, 50 ft. long, 5 ft. diameter; 200 double-deck dryer cars manufactured by Chase Fdry, & Mfg. Co., practically new. Ajax Brick Co., P. O. Box 307, Detroit, Mich. 12-2

FOR SALE—At your own price: one Iron Quaker soft-mud brick machine and all auxiliary equipment. It has made less than 500 M brick. Also Brewer brick and tile machine, 75 cast-iron dryer cars. All in good condition. Cedar Rapids Brick Co., Cedar Rapids, Ia. 11-2TFX

FOR SALE—Cheap for cash, f.o.b. cars Slidell, La.—Chambers No. 8 pugmill and brick machine, automatic cutter, clay distintegrator and spur-geared friction hoist. All good condition. Address: Southern Creosoting Co., Ltd., Slidell, La. 6-2-12

FOR SALE—Down-delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new. Carlinville Clay Co., Carlinville, Ill. 9-TF

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randie Machinery Co., 1733 Powers St., Cincinnati, O. 1-TF.

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Inventions Protected.
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Established 1895.

HUBERT E. PECK.
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STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

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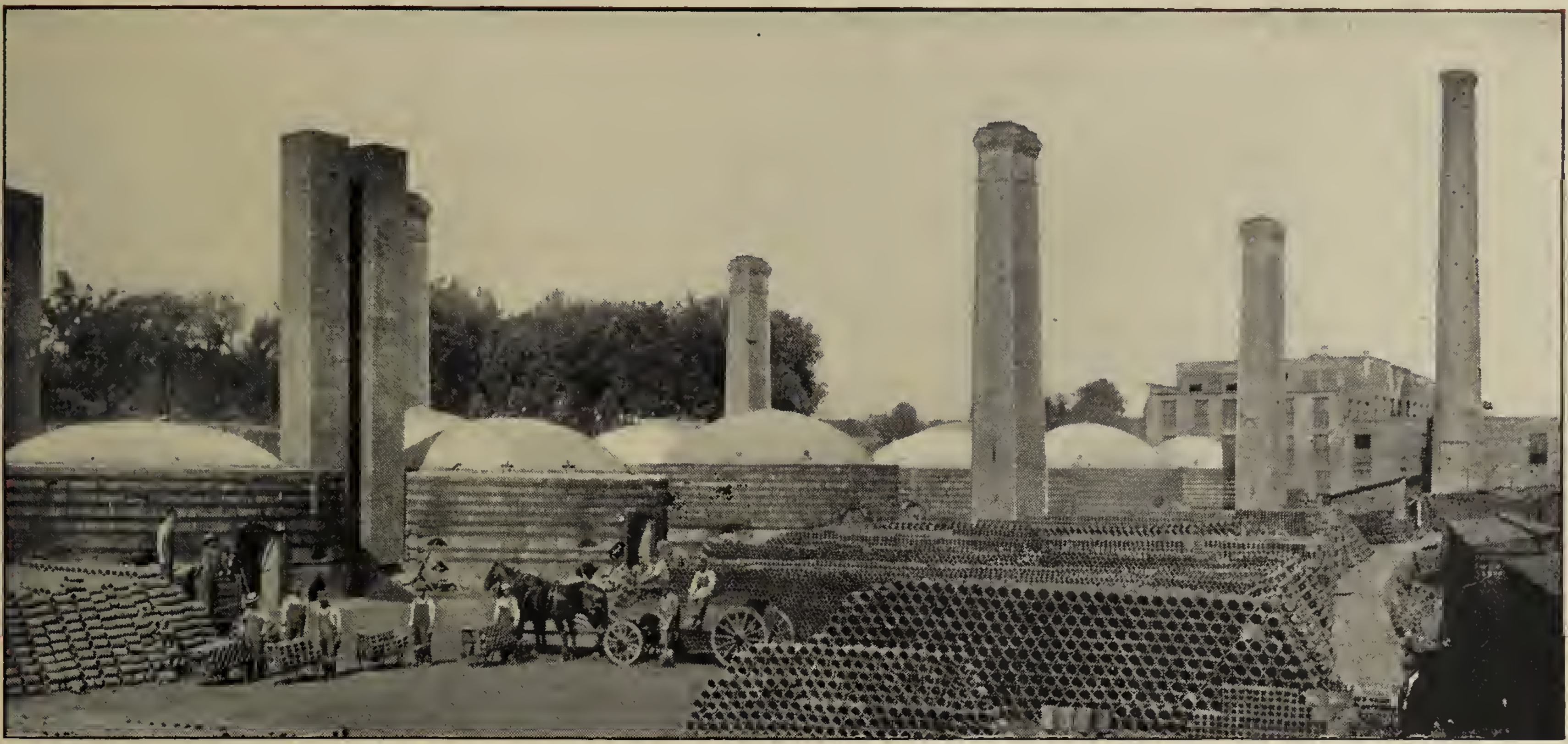
all sizes—small or large lots. New and relaying. Second hand rails cut to any length for special purposes. Frogs, switches, splices, and all track accessories. **Immediate shipment from stock.**

L. B. FOSTER CO.
PARK BLDG. PITTSBURGH, PA.



Every Brick Kiln Tells a Story

Unprotected kiln masonry shows at a glance that it is not delivering a "full count."

Expanded first-brick faces, cracked or fused brick edges show plainly that lost heat energy and profits are leaking away.

J-M Heat Treatment using **No. 31** and **No. 32 J-M High Temperature Cement** has been developed to prevent and offset these losses.

When **No. 31 J-M High Temperature Cement** is placed between the fire brick as a mortar and heated, it becomes vitrified at a very low temperature—1400° F. It does not shrink or expand up to 3200° F.

During this wide range of temperature, this cement is constantly getting stronger and cannot be broken down by the squeezing in the kiln wall or arches because of its high compressive strength.

No shrinkage or expansion in kiln wall or arch. No brick edges exposed or crevices developed.

JOHNS-MANVILLE SERVICE

COVERS THE CONTINENT

No. 32 J-M High Temperature Cement is used as a coating over the entire inner surface of the setting. It, too, vitrifies at a very low temperature and never loses its flexibility or elasticity.

The tenacity with which it holds to the brick is remarkable. It works into the pores of the fire-brick and stays that way despite temperature variations. It is proof against cracking, chipping or spawling.

For Pottery Saggers

No. 32 J-M High Temperature Cement is the ideal coating for saggers. It prevents the influx of damaging kiln gases which damage china, pottery and glassware during firing.

Write for more information about this profitable proposition.

H. W. JOHNS-MANVILLE CO.

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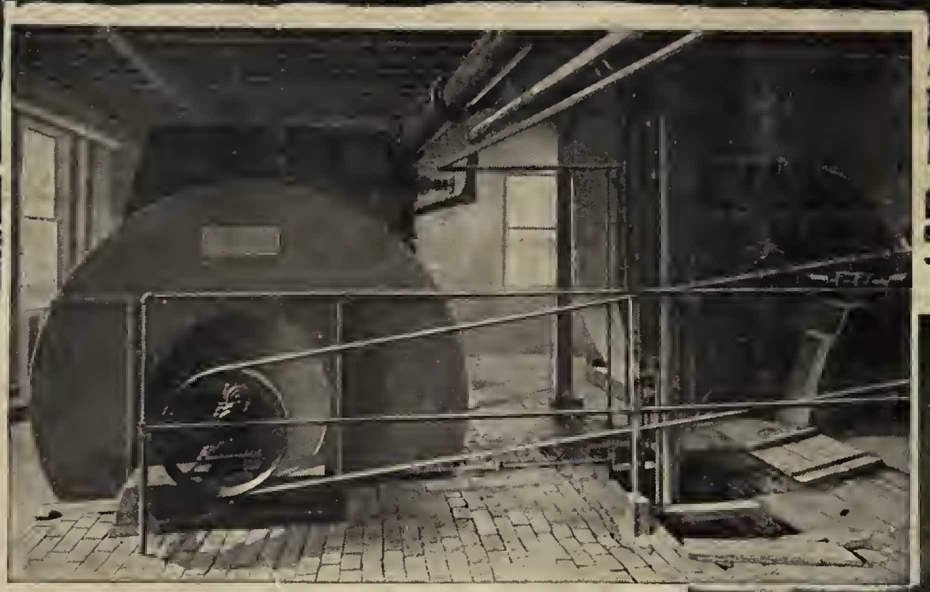
THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED Toronto Montreal Winnipeg Vancouver

SAY "I SAW IT IN BRICK AND CLAY RECORD"



Fans for Drawing Waste Heat From Cooling Kilns.

Dryer Tunnels Furnished with Waste Heat by "Sirocco" Fans.

"Sirocco"

TRADE MARK

Waste Heat Systems

economically convert a waste into a gain. The Claycraft Brick Co. of Graveport, Ohio, are using the "Sirocco" Waste Heat System. Many other clayworking companies are using the "Sirocco" System and all with the one idea of making valuable use of an element which would otherwise be absolutely wasted. These companies selected the "Sirocco" Fan because of its ability to handle the greater volume of heated air at the lowest cost for operation.

The "Sirocco" Multi-Blade Fan is the real heart of the system. Due to its high mechanical efficiency the cost of operating and maintaining the "Sirocco" System is reduced to the minimum. It is equally adaptable to common—face—fire—and paving brick manufacturing plants, also for the drying of all other clay products. In comparison to the ordinary paddle wheel type of fan, "Sirocco" saves cost of installation—and requires less space for the same duty.

Our Brick Engineering Department will gladly give suggestions regarding a "Sirocco" System for your plant. Write for Catalog No. 102

AMERICAN BLOWER COMPANY

SIROCCO AMERICAN BLOWER COMPANY

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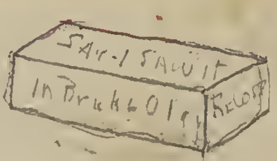
Indianapolis—1462 Lemcke Annex.
Boston—120 Milk St.
Columbus, O.—810 Harrison Bldg.
Dallas—Southwestern Life Insurance Bldg.
Grand Rapids—209 Houseman Bldg.



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